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VOLUME L.

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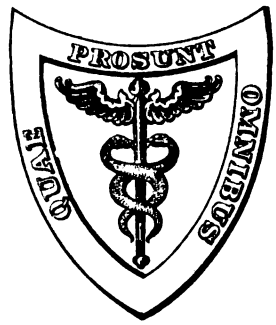

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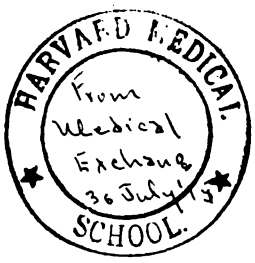

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CENTENNIAL ANNIVERSARY OF THE INSTITUTION OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

COMMEMORATIVE ADDRESS.

BY S. WEIR MITCHELL, M.D., LL.D.,
PRESIDENT OF THE COLLEGE.

Delivered January 3, 1887.

WE are met this evening to commemorate the hundredth birthday of the oldest medical society in America which is not a State organization. New Jersey and Massachusetts have State Societies of older date, which of necessity met rarely, and were chiefly meant to give unity, force, and discipline to a profession, the members of which were widely scattered over a thinly peopled country.

One hundred years ago the grave and kindly man whose portrait hangs above me at our meetings, met the Fellows of this ancient College as their first President.

In words which quaintly represent to-day my own feelings, John Redman expressed his sense of the honor then conferred upon him and of the responsibility created by such an audience; "for," said he, "when I look around me, I see so many gentlemen of character for learning, ingenuity, and integrity in the profession and practice of physick, and some whose talents have early called them forth into public notice, and offices of dignity in the medical line, and who have conducted therein for many years so much to their own reputation, and to the advancement and satisfaction of their pupils and of their fellow-citizens."

To understand the men over whom he presided, to comprehend the inheritance of examples they left us, to realize above all how peculiar have been the relations of the physician to the social and political existence of Philadelphia, it is necessary to look back through the century which preceded the foundation of this College.

The history of any profession in connection with the progress and growth of a new country is of the utmost interest, and of no profession is this more true than of ours. The bar, the army, the navy, and, in other lands, the church, have distinct natural relations to the government, but the physician has none, and in monarchial countries this fact has served to create for him annoying social limitations which are but too slowly fading as communities grow into intelligent disregard of feudal traditions. His position in any community is a fair test of its good sense. But in new lands, peopled by the self-selection of the fittest, by those who have the courage of enterprise, and the mental and moral outfit to win for it success, the physician is sure to take and keep the highest place, and to find open to him more easily than to others wealth, social place, and, if he desire it, the higher service of the State. Nowhere was this more true than in this city. In New England the clergy were for a long time dominant. In New York then, as now, commercial success was the surest road to social position. South of it was the landholder, who ruled with undisputed sway. But in this city—I may say in this State—from the first settlement until to-day the physician has held an almost unquestioned and somewhat curious preëminence. He is and always has been relatively a more broadly important personage here than elsewhere.

If this be not as clear to you as it is to me, let me remind you that in every legislature of this Commonwealth you will find a dozen members of our profession who have for a time taken up the duties of law-givers, intending to return again to their practice. I observe on the list of our Fellows to-day many men—and they are of our best—who have been or who are directors of insurance companies or saving funds, or even of banks, a thing almost unheard of in cities where the lower civilization of commerce is dominant. You will find them, also, in unusual numbers on our collegiate boards. Our great charities are never without some of them in their councils; and the Philadelphia Library is obliged, under the will of James Rush, to have in its direction three physicians. In our hospital boards, and still more largely in our learned societies, they are equally well represented.

Says a learned historian, writing of the Philadelphia of 1828, "Nothing struck me so much as the social force and influence of the physicians. I was familiar with other cities, and nowhere else did they seem to me to be so distinctly the leaders of social life."

The exceptional position which we occupy here is in a large measure due to the good fortune which, early in our history, directed to these shores a remarkable group of physicians, the friends and co-religionists of Penn.

As I am chiefly addressing Pennsylvanians, I shall not venture to say much of men whose names are still familiar. I desire, however, to show what breadth of liberty they had to do things which nowadays would scarcely be regarded as within the legitimate career of the largest-minded physician. Edward Jones, chirurgeon, came over in 1682. His father-in-law, Thomas Wynne, set sail in the "Welcome," with his friend William Penn, in that same August. These were both physicians of gentle breeding and of the best education

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their day could offer. Thomas Wynne was an active practitioner of physic, and yet found time to become President of the first Assembly which met in the province, and in which sat also his son-in-law, Jones. Both of these men lived to hold many offices of political trust and honor in their adopted country.

Next in our medical genealogy comes Thomas Lloyd. There is, what was called in Friend's phraseology, a testimony concerning him which, heard pleasantly across the turmoil of nearly two centuries, tells how that "he had a great practice, ... and generally good success, whereby it was often his lot to be amongst many of account in the world. . . . . Yet being a man of tender spirit, he was conscientiously careful over his patients whether poor or rich."

In the new land he sought for conscience' sake he was still for a while a physician. How, think you, did he find time to act as Deputy-Governor under Penn, President of Council, Keeper of the Great Seal of the Commonwealth? Apparently the good and great William Penn took care of his physician, for we hear that his friend Dr. Griffith Owen held the posts of Member of Assembly, Deputy-Master of the Rolls, and Commissioner of Property.

The early part of the next century was as fortunate. Lloyd Zachary, the grandson of that accomplished physician and trusted ruler Lloyd, was the first physician elected to the Pennsylvania Hospital, and was what we would call Port Physician in 1725. He shared this duty with Thomas Græme, a Scotch physician, who arrived with Governor Keith in 1715. Besides being thrown into large practice by the death of Griffith Owen, this gentleman was at various times Naval Officer, a Councillor, Master-in-Chancery, and at last Chief Justice of the Supreme Court, for which we may note that he received £50 a year. He was the first president and the founder of the now ancient and still useful St. Andrew's Society for giving aid to destitute Scotchmen, assisted to create the Philosophical Society, was with Zachary, the two Bonds, Moore, Cadwalader, and Redman, of the first staff of the Pennsylvania Hospital, and died in 1772, Collector of the Port. On his tombstone in Christ Churchyard, it is said of him, and it would seem with justice, that

> "The soul that lived within this crumbling dust,
> In every act was eminently just;
> Peaceful through life, as peaceful, too, in death,
> Without one pang he rendered back his breath."

The men I have here so briefly described were, with the exception of the last, of the Society of Friends—Græme was of the Church of England. The great struggle between the Presbyterian settlers of the interior of the State and the followers of Penn was now in full tide. Already other sects than those of Penn began to be prominent, and henceforward we find physicians of eminence who were not of the creed of Fox, but neither in the seventeenth nor the eighteenth century do we observe in Pennsylvania what was very common in early New England and New Jersey—men doubly occupied as physicians and clergymen.

I should have found it difficult to say less as regards the notable personages who came and went on the scene of our Colonial history, and who brought to their medical work the tastes, manners, and education of gentlemen, and to its completeness, high-minded sense of duty. It was needful that I spoke of them in order to show how perfect has been the good fortune which, from the day when the "Welcome" brought us Thomas Wynne up to the present hour, has failed not to give us like men, gifted with like intellectual qualities, holding the same lofty traditions of honor and industry, ready to take up our unending task whenever an older and wearied generation laid it down.

The century was in its last third. A new group of physicians, nearly all young or in early middle age, and trained in an eventful war, had come upon the stage. The city contained about 45,000 people. It was the seat of Government and of the largest social life the land afforded. Still predominant in commerce, it was also active in education and science. The College of Philadelphia had been for a time suppressed, the University had been medically organized, the Federal constitution was in debate, and Washington, a man of fifty-six years, was resident in Philadelphia. Fitch was constructing his first steamboat.

It would seem that the College was organized some time in 1786, but as to this we have no record other than that just mentioned. The first meeting of which we have a minute took place on January 2, 1787, and to this date we have always referred as our natal day.

On that 2d of January, 1787, in the evening, in a little house used by the University, and known as Surgeons' Hall, on Fifth Street south of Library, assembled a portion of the notable group of men who then constituted this College. By the dim light of candles, for which I have found the modest bill, clad after the fashion of the day, some in Quaker dress and some in knee breeches, silk stockings, and low shoes with buckles, most of them carrying, I fancy, the gold-headed cane and the meditative snuff-box, some with queues or powdered wigs, a fading fashion, were John Jones, William Shippen, Jr., Adam Kuhn, Benjamin Rush, Thomas Parke, Gerardus Clarkson, Samuel Duffield, James Hutchinson, William W. Smith, Andrew Ross, William Clarkson, James Hall, William Currie.

The full roll of Fellows and junior Fellows in January, 1787, adds the names of John Rodman, John Morgan, George Glentworth, Abraham Chovet, Benjamin Say, Samuel Powel Griffitts, Benjamin Duffield, John Morris, John Carson, John Foulke, Robert Harris.

Before our charter was obtained in 1789, there were added Nathan Dorsey, John R. B. Rodgers, Caspar Wistar, Jr., James Cuningham, Charles Moore, Michael Leib, John H. Gibbons.

They were in all twenty-four when they met in January, 1787, and thirty-one when they were incorporated in 1789. Only three of their names are to-day represented on our present list; but many more are familiar to your ears, and if we include the men I have previously mentioned, you will find that a large share of the best known families of our city trace their lineage from one or other of this memorable group. It would, in fact, be easy to give you a long catalogue of families distinguished in our national and local history, or in our social life, who inherit the blood of one or more of the physicians I have named or have yet to name; but as some of those here present may have the misfortune not to be able to claim the honor of medical ancestry I generously refrain.

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The portraits of many of these notable personages ornament our halls, and tell in their ruddy complexions of men who lived much out of doors, and often in the saddle, and illustrate the changes which time is making in the physical conditions of our race. Here are descendants of the settlers who, armed only with the courage of good intention, came to the wilderness with Penn, or followed soon after. Welsh or English, nearly all of them, but two represent the German element; only four have middle names—as to which a curious change is seen in the later years.

The older men generally sign first. The President was sixty-five; Jones, fifty-eight; Morgan, Shippen, and Kuhn, each fifty-one.

These were physicians who assisted at the troublous birth of a great nation. I fancy that I can see in their resolute faces the lines left by the sorrows and trials of those eventful years when they rode with the great Virginian, and shared with him the hardships of doubtful campaigns and the triumphs of Princeton and Yorktown. Among them were the friends and physicians of Washington, Franklin, Hamilton, Jefferson, and Adams. They held to their medical opinions, as we shall see, with the same absolute belief that controlled their political actions, and were nearly as ready to fight for the one as for the other. As to their medical ancestry, the best of them had been educated at Edinburgh, which school is the parent of our University. Genealogically, we might speak of our College and of the University as children of Edinburgh, and grandchildren of Leyden.

[Here followed terse sketches in words of the founders; of Rush, Dr. Mitchell said:]

With reverent doubt of my powers to do justice to the greatest physician this country has produced, I approach the task of briefly recalling to your memories the vivid and emphatic personality of Benjamin Rush. His life invites a less hasty biographer, and is full of such seeming contradictions as can only be explained by the belief that the earnest, decisive, and mutinous nature of a man, proud, rather than conceited, got the better of the principles by which he honestly strove to guide his conduct. That he won at last in this contest, was shown by the grief with which a nation mourned his death, when the poor in crowds besought a sight of his face, or, at least, to touch his coffin. Look at his portrait by Sully in our hall. It has the scholar's hands, the largely modelled head, the contemplative blue eyes of the observer, the nose and chin strong, firmness in the mouth, and a trace of too critical tendencies in the droop of the lines of the lips, withal a general expression of tranquil benevolence, a face like the man's life and character, full of dissimilars, with a grand total of good.

How shall I briefly bring before you the career of this restless being? Relentless energy drove him through a life in which ardent sense of duty, large-minded philanthropy, love of country, devotion to his art and its science, immense belief in himself, were the motives to industry, which made note-books the companions of his student youth, and which failed not until the pen fell from a hand enfeebled by the close approach of death.

He was a statesman, a scholar, an army surgeon, a punctual and careful physician, an actively religious man, a far-seeing and courageous philanthropist, and a sanitarian far in advance of his day. These are what I might call four careers, in all of which he excelled unaided by secretaries or modern means of condensing and relegating labor: one such suffices most men. He was a member of every important political assembly which met in this State while he lived. When timid men fell out of the Continental Congress, he was elected to that body, that he might sign the Declaration of Independence, and was the only physician whose name is on that energetic arraignment of the Crown. I have neither time nor desire to speak of his relations to Washington. He criticised him with his usual courage and with a severity in which at that time he was not alone, and, although later in life he somewhat relented, he never quite forgot the bitterness which arose out of his too famous letter, and to the end of his days looked upon the great leader as one not above the judgment of his fellows. As regards the patriotism of Rush there can be no doubt. It approached the earnestness of religion, and its very intensity made him unhappy and critical when others seemed to him to be showing that want of energy which in the first years of the war he thought was seen in the Fabian policy of Washington.

Rush was Surgeon-General to the Middle Department, and later Surgeon-General, and served faithfully in the New Jersey campaign and in the dreary camp at Valley Forge. He resigned in 1778, after his difficulty with his chief, and declined pay for his services.

As a broad-minded philanthropist, I view him with wonder. The higher education of women he urged as a special need of a Republic, and as boldly wrote of public punishments and against the penalty of death. With like courage he denounced slavery, or turned to demand legislation against the abuse of alcohol, or to implore care in the use of this agent in disease, and, although a scholarly man, eloquently represented the waste of time in the too general study by the young of the classical tongues.

On his medical career I cannot linger. His views as to bleeding were extreme. They were greatly modified in his later years, but have been misrepresented by the enmity his positive nature excited, and can be fitly judged, not by his occasional vigor of statement, but also by the many tempering remarks to be found in his works. His ideas on the contagion of yellow fever and its domestic origin excited the hostility of commerce, and embittered his existence; but, although as to the former he changed his beliefs later in life, as to the latter he seems never to have faltered.

I presume that he held his opinions tenaciously, and was so conscious of his own general superiority to those about him, that he found it hard to weigh their reasons justly. He says, "I early discovered that it was impossible for me, by any reasonings, to change the practice of some of my brethren." Then he adds, "humanity was therefore on the side of leaving them to themselves, because what is done in these consultations is the ineffectual result of neutralized opinions; for the extremity of *wrong* in medicine, as in morals and government, is often a less mischief than that mixture of *right* and wrong which serves, by palliating, to perpetuate evil." How interesting is this irritable confession, which tells so much more of the man than he meant to put into it. Let me add, as a thoughtful physician, that no one can read what he wrote—and I have

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read most of it—without a strong sense of his sagacious and intelligent originality, and admiration of his clear and often fervid style. His work on insanity is a masterpiece. A recent English writer calls his book on "the bilious remitting yellow fever" a wonder, and says of that remarkable description of his sensations during the height of the epidemic, "it is as if he were talking to you, a ghostly whispering through a veil of nine-tenths of a century." He has been called the American Sydenham. He was not as I see it, so great a physician, but taking his whole career—and both were earnest republicans—Rush was the larger personage, and surely, next to Franklin, the greatest citizen of Pennsylvania.

His bitterest foes are best remembered because of the man they reviled. Even before death came to heal all wounds, he stood where few have stood in the estimate of men. He could not but feel this tribute. It gentled the positive and ardent nature, once ready to cross swords with all who dared to differ. He says "I was once an aristocrat, then a democrat, now I am a Christocrat." Certain of his words should have been placed on his tombstone. With them we may leave him to his repose, near the yet greater Franklin. "Posterity," he says, "is to the physician, what the day of judgment is to the Christian."

Caspar Wistar, Jr., is a familiar name. Like Rush, there is much of the man's life on record in the portrait by Otis, as the least observant may see. The face is strong and intellectual, the mouth large and full of good humor and mirth, the chin positive, a face thoughtful above, and below alive with promise of genial companionship. He could have been but sixteen when we hear of him as active in helping the wounded after the indecisive fight at Germantown.

He followed Rush as President of the Anti-Slavery Society, and Jefferson as President of the Philosophical. If a man's friends be in some sense a description of the man, among his were Humboldt, Michaux, Sœmmering and Camper, Cullen, Hope, Jefferson, Warren, and Correa, the cynical and amusing Portuguese minister. You can see from these names, that science occupied him, and especially anatomy, that the practical aspects of his profession were not forgotten, and that he was at home among those whose talk left to their surviving contemporaries vivid memories of an unusual social era. He is known still to most of us as the founder of the Wistar Parties, which owed much of the later social vitality to the hospitable houses of the leaders of our profession. When I was a young man and Wistar was long since in his grave, we were still familiar with the worn card of invitation which carried his vigorous profile with its formal queue from simpler days to those of champagne and terrapins, and until the fierce quarrels of the great war broke up this gay and joyous company. It was wickedly said that the doctors profited by those noble suppers. Even in their luxurious decadence they were delightful. Men who came to eat remained to chat. They left to me at least a gallery of pleasant portraits of some whose living talk would have made that good founder happy. Hear how Thackeray mourns a dead friend. "There will be," he says, "no more Whister parties for him. Will Whister himself, hospitable, pig-tailed shade, welcome him to Hades? and will they sit down—no, stand up, to a ghostly supper, devouring the *ιφθιμους ψυχας* (the mighty souls) of oysters and all sorts of birds?" (*Haud immemor.*, p. 8. William B. Reed, 1864, Phila.)

I have dwelt on this aspect of a full and wholesome, learned and useful life, because it well illustrates the social prominence of the Philadelphia physician. We may leave him with the words in which another described him: "Decorous, suave, honorable, and courteous, he forgot nothing except injuries."

The history of an old and learned institution is that of its members and of its relation to public affairs. No man can hope in the scope of an address to set before you the shining roll of the men who have illustrated our story with duty done simply and in private, of patient, charitable lives, of those larger existences which left their mark, also, on the science of their day, and to this memorable hour have sustained in noble succession the prominence of this city in all that lifts our art and its sister sciences above the common levels of applied usefulness. The task were hopeless and belongs to the historian rather than to the orator.

But our relation to the public cannot be thus readily disposed of. The acts of single men help to give us collective power to interfere in public matters, and here this College has been up to this day potently active. To it came early for advice in all affairs of health and quarantine the city, State, and general government; and the minutes amply record that it has labored conscientiously to aid the commonwealth and the city as to sale and importation of pure drugs, as to parks, water supply, education, drainage, and the many other problems which call for advice and direction from experts.

To the physician epidemics are his battlefields. His daily life is hard enough, and, unlike the soldier, he lives amidst constant perils, of which habit has made him negligently forgetful. He is assisted to be unthoughtful as to risks by the fact that the community thinks little of those which are not, like the soldier's, occasional, or which it does not largely share. You must have lost sense of heroism if you do not feel some thrill of pride when you look back with me over those sad years in which the Fellows of this College, amidst the contagion of terror, faced the storms of death which from 1793 to 1804 swept over this city and forever ruined its mere commercial supremacy.

Let us see how well this College met it. Several of its Fellows could recall the epidemic of 1762—the Barbadoes Plague—the dreaded yellow fever. Rush, a student, made notes of it in his constant way, and Redman, an older man, described it with accurate skill. A few hundred died, and for thirty-one years the great town flourished undisturbed. For two years the College had at times been urgent as to quarantine, but selfish, short-sighted commerce had been more potent. On the 25th of August, 1793, a special meeting of the Fellows was called "to consider their duty because of the fever of alarming nature" Rush, Hutchinson, Say, and Wistar were to report on the 26th. Nothing, on the whole, could have been better than the calm, good sense of the letter of public advice which the College, at the instance of their committee, addressed to the mayor, Mathew Clarkson, and to the people at large. At this meeting, the President describes the fever of 1762. Tilton, our associate, advises tents as hospitals, and the College decides to meet every Monday. How simple

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it all sounds, the quiet councils, the talk as to treatment. The Fellows assemble on the 3d, 6th, 10th, and 17th of September, and consider Alexander Hamilton's letter of inquiry as to the fever and answer Warren, of Boston. Meanwhile the plague is on the people, and the College meets no more until November.

To speak of this awful summer, is to speak of a population degraded by the very insanity of fear. The rich fled first, and at last almost all who could go. In round numbers, Philadelphia had 6000 houses and 49,000 souls. Some 3000 houses were closed. 12,000 persons fled to the country—Carey says 17,000. Of those left behind, 11,000 took the fever, and one-third of these died. Before this appalling death-rate all but a rare few gave way. In deserted streets, between rows of closed houses, where commerce had ceased, men walked down the middle of the causeways, and declined to shake hands with friends, or turned aside from any who wore the badge of mourning. Thousands of both sexes smoked tobacco to avoid disease, or carried vinegar or camphor or bits of tarred rope for protection, while bonfires at night and firing of muskets to disperse contagion, ceased only when the mayor forbade them. The churches were shut; most of the weekly papers ceased to appear. For the laborer there was no work. Starvation drove him to crime, and thieves lived riotously in deserted houses. At last family ties were broken, men fled from their dearest, whole families deserted the bed where the father lay dying, nurses were hardly to be had, and still the sombre death-cart went its nightly round with its negro driver, and in answer to the dreary cry, "Fetch out your dead," corpses were lowered from open windows on to the cart, backed up on to the sidewalk, or were carried out in haste to be put across the shaft of what was called a chair, and hurried away for swiftest burial. So lower and lower men sunk, as the plague increased, until at times the dead lay unburied, corpses were found in the streets, and the climax of misery, neglect, and profligate riot was reached at Bush Hill Hospital for the poor. Amidst this horror of disease, of selfishness, of crime, there were men who grew morally stronger through that which enfeebled the mass. The most of the physicians of the blighted town went about their duties untouched by panic—undisturbed by fear. In our own ranks were none who failed. Their names are to be read on every record of those dreary hours. Theirs was what Ruskin speaks of as "that constitutional serenity in danger, which, with the wise, whether soldier or physician, is the basis of the most fortunate action and swiftest decision of deliberate skill." (Proterita, p. 379.) How they differed as to treatment, and how doggedly they held their beliefs concerns us little. That they did their full duty as honest gentlemen concerns us much.

Hutchinson died, and Morris and many others not in our fellowship. None altogether escaped untouched by the plague, which swept away ten physicians in a month. Says Rush, "at one time but three physicians were able to do duty outside of their own houses. From this cruel summer until 1806, no year left us free from the fever, but the worst of it fell upon us in 1798." Again the College had in vain sounded repeated warnings to the city, the State, and the General Government. Again there is that eloquent blank in our minutes from August to November. It was more terrible than '93. Some forty thousand fled, and of those who stayed, about four thousand died, nearly half of those attacked, and again the scenes of '93 were repeated, and again, as in '93 and '97, our ranks were thinned, and only more did not die because nearly all were protected by previous disease.

There were physicians who fled from this more deadly horror, but in the thick of it I find the names of our Fellows. Griffitts's daily record, meant only for his own use, is before me as I write. He says: "My patients are mostly among the poor. While I went to the country to see my sick child, half a day, upward of fifty knocks at my door. Yet through all this I am favored with calmness. My lot seems cast among misery and death. A day of trouble. Buried a beloved servant. Much unwell today. Too much to visit. Thus they suffer from unavoidable neglect. I feel indeed alone."

We lost Hugh Hodge and Annan later of the same disease, and through all of these sad years we find always ready, always dutiful, the best of the men whose lives I have sketched. Scarce one escaped the wounds of disease, and at least six died; but none failed us. Surely this is a record to look back upon with that pride which nourisheth good example. We may grieve for suffering, and regret careers cut short, and yet desire to preserve their remembrance;

> Nor could humanity resign
> Each hour which bade her heart beat high,
> And blazoned duty's stainless shield,
> And set a star in honor's sky."

Meanwhile the battle as to contagion and importation, and bleeding, and emetics and calomel, raged with a fury of personalities for which it is difficult to account, but which the tenacity and irritability of Rush may, in a measure, explain. It caused Rush a bitter personal quarrel with Andrew Ross, and disputes between Rush and Kuhn as to the treatment of Hutchinson, and led to the resignation of Rush and the formation of the short-lived Academy of Medicine. These virulent intellectual duels ceased by degrees when the new dispute as to vaccination arose, and as most of our Fellows favored it, it seems hard to explain their action. In December, 1802, Lettsom sends the College from London vaccine virus, and shortly after is elected an Associate, while alas, Jenner, proposed by Plunket Glentworth, fails of election, a sad commentary on the too conservative tendencies which nowadays have somewhat ceased to trouble us. But a little while and the world of opinion was with Jenner. Three or four years later no man would have dared to blackball one of the immortals. The moral is not far to seek, and time has not quite worn it too threadbare for use. In all our history we have little to feel ashamed of, and this reproach comes swiftly after, nay, among the deeds which showed of what heroic stuff were the men whose portraits hang around our hall.

Our early years produced a few notable essays, but the great and active intellect of Rush was lost to us and his influence kept out of our fellowship Physick and Mease and some others of note. As I look forward over our minutes up to 1820 the papers are fewer. In some years there is not one. Often there is no quorum. Currie writes and tells us in a wandering and irritable letter, that we are inert and useless, which is hardly true, for still in all public affairs the College is active and attentive. Death, too, has been busy with the men who

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had smiled in her face so often. Some twenty are gone —the surgeon-soldiers of 1776, the veterans of '93 and '98. New names appear, though slowly. Sixteen are added before 1807, and of these the yellow fever has taken four. In several years no election of a Fellow occurs, and none from 1807 to 1810. in 1811 we gain the first I personally remember, the honored and well-loved Hewson, sometime our president, then Chapman, of joyous and social fame, Neill, Parish, the Bartons, and Atlee at the beginning of his life of vigorous and originative usefulness. And now, in 1823, Currie, Parke, and Griffitts, alone, seem to be left of our institutors, but as to some others I can find no note. It is difficult to explain the intellectual inactivity of the College in these years. It was rather paresis than paralysis, inertness than want of power. But why did we survive at all? The Academy had perished, the Philadelphia Medical Lyceum had come and gone. The Philadelphia Medical Society, the Kappa Lambda, the Medical Association of Philadelphia had been organized and were soon to die out or had already disappeared.

We were saved, I fancy, by that which preserves the vitality of families—great traditions which nourish pride and the conservative power of property—careful treasurers had begun to hoard for us a little money, and our library, if as yet small, was valuable. Moreover, we were still, as always, the public advisors, and the position of advisor is one which flatters. Then came the fortunate accessions from 1824, and we win illustrative force as we get Hartshorne, Bond, Hodge, Meigs, La Roche, John K. Mitchell, Darrach, and notably Wood and Bache, familiar collocation of names, and almost as one in friendship and usefulness: Pennock and Gerhard, Hays, Pancoast, Mütter, Carson, Dunglison, Norris, McClellan. Catalogues of names are valueless, but these are winged with memories.

We met first on Fifth Street. In 1791 we carried ourselves and our modest library—one case of books—to the Philosophical Society rooms, whence we journeyed to the Mercantile Library building, then on Fifth Street, and in 1854 to the little house on Spruce, within the Hospital grounds. As I first climbed its well-known stairs in 1856, I remembered the picture by West, of Christ healing the sick, which in my childhood hung on the wall. The debates used to be sharp in those days. There was Wood in the chair, most courteous of men, gently formal, and of ever ready kindness to younger physicians; a peace-making presence when the too positive Condie was raging in debate, and Charles Meigs, with his poetic nature and talk of singular freshness, was spurred to sharp reply, and Hodge grew graver and yet more sedate, and Bache sat ready to drop with deliberate slowness of contradiction on the inaccurate. As I write, the visage of Gerhard returns to me with its grim humor. A man quick of speech and as quick to regret, an unbalanced nature, but a keen and subtile observer. There is stout George Fox and the slight, delicate figure of La Roche beside our great surgeon, Pancoast, sturdy, earnest, and original, a curious physical contrast to his colleague Mütter, small, exquisitely neat in person and courtly in manner.

You will forgive my gossip. I should like to believe that our juniors have reason to look up to us as we did to these men. A crown seemed as remote to me then as the chair which, by your grace, I now hold.

We owe our present home chiefly to the liberality of George B. Wood, to George Fox, and to the unceasing efforts of Isaac Hays, who, as chairman of our Building Committee, served the College with that high-minded sense of duty which he carried into every relation of life.

In 1856 our building fund, by careful nursing, had grown to $16,000. Our first large accession, like much else that is good, came from Wood. A western quack had infringed the copyright of the Dispensatory, and the heavy damages awarded were generously given to our building fund. In the same year, by good fortune, Thomas Dent Mütter offered to give us his museum and to leave us an endowment of $30,000, on condition that within five years we gave this collection a fire-proof shelter. Gift after gift from Dr. Wood followed—not less than $10,000 in all—and in 1863 we moved to our present hall, to which we have but of late added the third story contemplated in the original plan.

The College museum at once grew into importance by the addition of Mütter's gift, and is now one of the most valuable and interesting collections in America.

The library, which owed its first gift and legacy of books to John Morgan, now numbers nearly 38,000 volumes and some 20,000 pamphlets, and is second in America only to that which the ample purse of government and the genius of the greatest of medical bibliographers, John S. Billings, have created in Washington.

Books are the best tools of our business, and a great library like ours insensibly educates by tempting men with the noblest of opportunities. It is like an unfailing friend to whom we go for counsel and helpful advice, and a catalogue is its ready memory of all that our greatest knew and taught. Look around that great collection in all tongues. It is a vast presentation of the thoughts, the beliefs, the victories, the defeats of that profession which has been, as compared to any other, the purest, the most single-minded, the most simply devoted to its moral creed, the world has seen through all its changeful ages. It has its peerage, its lords of thought, its sturdy, practical commons. Yet here is no set creed of dogmatic beliefs. We make and unmake our rulers, and time, which is more wise than Bacon, has a large vote in the matter; but while systems of medicine crumble, and doctrines have their little day, and men have been intellectually right or wrong, it is pleasant to remember that the lofty code of moral law our Greek fathers taught has kept through all these productive centuries an invigorating control over the lives these gathered volumes represent. Thus, for him who loves his art, a great medical library is full of lessons in the conduct of life. There, side by side, the feeblest and the strongest meet. What a record of the follies and caprices of learning, of devotion, of martyrdom, of simple usefulness, of ambitious failures! Here are stately tomes unread for ages. Here is some little volume which has changed the great currents of thought and brought hope and relief to a thousand bedsides. In yonder corner is a modest book-case, which groups the bric-a-brac of the bibliographer; the mad jesters, the cranks, the queer anecdotists, the priceless incunabula, the medical poems.

I like to think of the book-loving men to whom we owe this collection. Morgan, the scholarly; Hays, editor for fifty-three years of the best medical journal

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the world has seen; Moreton Stillé, too early dead, with his half-used store of varied learning; Wood, Betton, Mütter, Gross the great surgeon, Hodge the famous teacher of obstetrics; Lajus, that gentle and modest scholar who once said to me in his odd way, "I like the men who are like books, and that is why I like Samuel Lewis."

I have broken my rule for the first time, to name a living Fellow of the College, the constant benefactor of our library; but in proportion as a man is modest, self-forgetful, prone to avoid public recognition, one is tempted at a time like this to say what we think of him to whom we owe so much. Kindly friend, learned and liberal scholar, we are glad that you are here with us to know, once for all, how lovingly we thank you for the unstinted generosity of these many years.

In that last great war we most of us so well recall—in that vast struggle, whose authors we do well to forgive, but whose trials and lessons we do as well never to forget, this College was true to its traditions.

There are on our list to-day, at least one hundred and four men who served their country in the field, in hospitals, or at sea, in those years of sacrificial trial.

Whatever we may have thought or felt of that section of our race which faced us in fight, of this at least I find it a pleasure to feel sure, that wherever men were sick or wounded, our ancient guild did well its Christ-like duty. As to that record, North and South, there can be neither doubt nor difference.

I close with satisfied pride these annals of the past, and its dead. I see about me men whose books are in every tongue of Europe, whose works are known and honored among the learned of every land, men who wear by just decree of their fellows the unseen crowns of honorable estimate. I see, too, the young in work, the men who are to follow us. To them we shall soon consign this precious heritage, the record of a century of duty; an hundred years without one break in our meetings, save when pestilence thrust upon us a more imperative service. There is that in these years to make them proud of a fellowship which in war and in peace has left us examples of single-minded workers unknown to fame, of the charity without taint of selfishness, of heroic lives lost in battle with disease, of gentle scholars, of daring surgeons, whose very fingers seemed to think, of physicians rich with every professional grace. The pride of lineage is valueless which does not secure to the future vitality of usefulness, and I must have told my story ill if to every physician who hears me its illustrations have not the invigorating force of moral tonics.

I turn now from the present and face the silence of futurity. As earnestly as our first president, I pray with him that all those who sit around me, and all who are to come, do publicly and privately serve their generation.

Feeling, like him, the weight and dignity of my office, and to-day more than ever, I look onward thoughtfully to that next centennial time. Every heart that beats in this hall to-day will have ceased to pulsate. Another will stand in my place. Reviewing our works and lives, he will be able; I trust, to say as confidently of us as I have said of your fathers—these, too, belonged by right of dutiful lives and sincere work, to our great, undying brotherhood.

ORIGINAL ARTICLES.

A PRELIMINARY NOTICE OF A CRYSTALLINE ACID IN URINE POSSESSING MORE POWERFUL REDUCING PROPERTIES THAN GLUCOSE.

BY JOHN MARSHALL, M.D.,
DEMONSTRATOR OF CHEMISTRY, UNIVERSITY OF PENNSYLVANIA.

IN the early part of last November, Prof. Frank Donaldson, Sr., of Baltimore, sent for examination, to Prof. Tyson, of this city, a urine which contained a substance having strong reducing properties much resembling those possessed by glucose. After Prof. Tyson had finished his examination, he gave the remainder of the urine to Prof. Wormley, for further investigation. From Prof. Wormley it came to me. From the results obtained by the three independent observers it was concluded that the reducing substance was certainly not glucose. This conclusion was at once communicated to Prof. Donaldson by Prof. Tyson, and at the same time Prof. Tyson requested that a larger quantity of urine be sent to me for further examination. This larger quantity was kindly sent by Prof. Donaldson, and arrived at the University on November 17th, and the examination was immediately continued. A few days afterward (November 21) crystals of the lead salt of the acid were obtained. Prof. Donaldson was at once informed of this result, and at the same time a few crystals of the salt were sent to him.

From Prof. Donaldson it was learned that the urine in question was voided by a man thirty-seven years of age, of florid complexion, and of average height and weight. His general health and nutrition have always been good. He has never had any muscular weakness or inordinate thirst, no emaciation, but instead a continued increase in weight, no excessive quantity of the secretions. He has always been temperate as to alcoholic stimulants. Since his seventeenth year he has been engaged in the lumber business, and at present is superintendent of a planing-mill, which position requires his visiting the mill two or three times daily.

The case is peculiarly interesting, because of the man's having repeatedly, during the past two and a half years, applied to the various life insurance companies represented in Baltimore for insurance, but each time suffering rejection because of the response of his urine to certain reagents used in testing for glucose, a response which naturally was considered to be due to glucose.

Upon the ingestion of certain substances, other substances appear in the urine, which have a reducing action upon alkaline copper solutions. When camphor is ingested, camphoglycuronic acid, $C_{16}H_{24}O_8$, appears in the urine. This breaks up into glycuronic acid, $C_6H_{10}O_7$, which has a strong reducing action. Chloroform in the urine also reduces alkaline copper solution. Chloral is converted into urochloralic acid, $C_8H_{12}Cl_3O_7$. Turpentine into terpenoglycuronic acid. Morphia forms a reducing substance. Phenol (carbolic acid) and benzol form hydrochinon, $C_6H_4(OH)_2$. Phenol and benzol are also converted into oxyphenic acid (pyro-catechuic

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acid), $C_6H_4(OH)_2$, which latter probably is identical with the substance described by Boedeker as alkapton. Tannic acid is excreted as gallic acid. All these products possess the property of reducing alkaline copper solution. Hydrochinon and oxyphenic acid in the presence of an alkali, and when exposed to the air absorb oxygen, and turn first green, then brown, and, finally, black.

It was learned that the person who voided the urine under examination never had occasion to use any of the above-named substances; and, therefore, one would hardly expect to find the products of their metamorphosis in the urine. It must not be forgotten, however, that oxyphenic acid has several times been found in normal urine.

The peculiar acid in question is contained in rather large quantity in this particular urine, nearly one gramme of the lead salt having been obtained from 100 c. c. of the urine. Its reducing power is greater than that of glucose; 0.6 c. c. of the undiluted urine was sufficient to reduce the cupric oxide in 10 c. c. of Fehling's solution, equivalent to 0.05 of glucose, or, expressed in glucose units, equivalent to 8.3 per cent. of glucose.

Some of the reactions of this urine, when considerably diluted with water or with normal urine, strikingly resemble reactions often noticed in this laboratory in urine considered and acknowledged to be free from glucose, especially in the reaction with diluted Fehling's solution. With the urine containing the acid, diluted either with water or with normal urine, and diluted Fehling's solution, a brownish and sometimes greenish coloration is produced, but no appreciable reduction of the cupric oxide is observed. A similar result has often been noticed in this laboratory when a presumably normal urine has been tested with Fehling's solution.

It is quite likely that this acid may occur more frequently in urine than is suspected, probably only in less quantity than contained in the urine just referred to, and to its presence possibly may be attributed the many peculiar and unsatisfactory reactions so often noticed when testing urine with Fehling's solution. Quite likely, too, in some samples of urine, the acid may be contained in sufficient quantity to produce a reduction with Fehling's solution in such a satisfactory manner as to be mistaken for glucose, and thus many erroneous diagnoses of diabetes mellitus may have occurred.

The urine from which the acid was obtained was of a brownish-red tint, perfectly clear and without sediment.

To isolate the acid the following method was employed:

The urine was treated with half its volume of plumbic tribasic acetate solution, and the resulting voluminous precipitate collected on a filter and washed several times with a mixture of equal parts of alcohol and water. The precipitate was then suspended in warm water and hydrogen sulphide passed through until all the lead was precipitated. After expelling the hydrogen sulphide from the filtrate by boiling, excess of plumbic carbonate was added, and the liquid was gently boiled several minutes, and then filtered while hot. The filtrate was concentrated on the water bath and then kept in a cool place to allow crystallization to occur. The crystals of the lead salt which separated were washed by decantation with a mixture of equal parts of alcohol and water and recrystallized from hot water. Finally, when sufficiently pure they were dissolved in hot water and the lead precipitated by hydrogen sulphide, filtered, and the filtrate containing the free acid evaporated to dryness at about 70° C. The residue was extracted with ethyl ether, and the latter evaporated spontaneously. Several recrystallizations from ether, the final one from a mixture of ether and water, are necessary to obtain the acid in a fairly pure condition. The crystal mass was pressed between bibulous paper and again recrystallized from water.

The acid thus obtained crystallizes in opaque white tetragonal prisms, melts at 140° C., and sublimes in the same prismatic form, the crystals generally radiating from a centre. It is very soluble in water and in ethyl ether, soluble in absolute alcohol and also in ordinary alcohol, sparingly soluble in chloroform, insoluble in benzol, toluol, and in petroleum ether.

When its solution in ethyl ether is evaporated at a temperature of about 60° C., a slight claret-red tint is produced, which soon resolves into spots of purple. This purple substance (somewhat resembling murexide) attaches itself to the crystalline mass, producing a very beautiful appearance. The crystals, including the purple substance, dissolve in water, with a disappearance of the purple coloration. In the spontaneous evaporation of the aqueous solution of the acid no change of color is noticed.

The acid does not contain sulphur or nitrogen.

The acid is absorbed by animal charcoal. When the urine itself is passed through animal charcoal the filtrate becomes dark claret-red in color, and has lost its reducing property.

Sodium hydrate gives a brownish coloration, beginning at the surface of the liquid (due to absorption of oxygen). Oxyphenic acid gives an almost similar reaction, only that a green coloration is first produced, which is not the case with the other acid. The brownish coloration noticed when the diluted urine containing the acid is added to Fehling's solution, is partly due to the action of the alkali of the Fehling's solution upon the acid.

Picric acid causes no change. Upon the addition of sodium hydrate to the mixture of the acid and picric acid, a brownish coloration is produced, similar to that produced by sodium hydrate alone.

No reduction of the bismuth salt in Böttger's test occurs with the acid.

The acid responds to Trommer's test, as also to Fehling's test.

Argentic nitrate is reduced in the cold by the acid.

The fermentation test fails completely.

Its aqueous solution has no effect upon polarized light.

Upon the addition in turn of a dilute neutral solution of ferric chloride, ammonium hydrate, and acetic acid, the play of colors from green to violet, and then to green as with oxyphenic acid, does not

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occur. It does not respond to the tests for hydrochinon.

With a dilute neutral solution of ferric chloride a blue coloration is produced which very soon disappears. From this reaction the acid most likely is a phenol derivative. It forms lead, barium, and calcium salts.

The lead salt crystallizes in heavy needle-like prisms, melting at 209.5° C. It is soluble in hot water, insoluble in benzol, toluol, petroleum ether, absolute or ordinary alcohol, ethyl ether, and chloroform. It is decomposed when passed through animal charcoal, the acid remaining in the charcoal and the lead coming through with the filtrate as oxide.

On account of insufficiency of pure material—acid and lead salt—no ultimate analysis has thus far been made. In a short time I hope to have enough material for that purpose, and then a formula for the acid can be constructed, and more learned regarding its source in the human organism. However, two lead determinations in the lead salt have been made:

0.1466 gramme lead salt gave 0.0717 gramme $PbSO_4$, equivalent to 33.50 per cent. of lead.

0.1314 gramme lead salt gave 0.0649 gramme $PbSO_4$, equivalent to 33.66 per cent. of lead.

Mean percentage of the two determinations, 33.58 per cent. lead, indicating that the acid has probably a high molecular weight.

I would suggest for this substance, provisionally, the name glycosuric acid.

MEDICAL CHEMICAL LABORATORY, UNIVERSITY OF PENNSYLVANIA.

INFLUENCE OF THE RECENT EARTHQUAKES IN CHARLESTON UPON HEALTH.

BY JOHN GUITÉRAS, M.D.,

PASSED ASSISTANT SURGEON U. S. MARINE-HOSPITAL SERVICE, PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE MEDICAL COLLEGE OF SOUTH CAROLINA, AND ONE OF THE PHYSICIANS TO THE CITY HOSPITAL, CHARLESTON.

IT may be of interest to have the subject of the Charleston earthquakes presented from a different point of view than that taken by my respected friend and colleague, Professor Porcher, in THE MEDICAL NEWS of Dec. 11, 1886.

It is doubtful whether the pathological manifestations produced by the great disturbance are worthy of any special investigation. But the electrical hypothesis advanced by Dr. Porcher should not be allowed to go without comment. The public press has been busy with innumerable theories concerning the causes of earthquakes. The electrical theory seems to have captivated the public fancy. Seismologists, however, have shown that electricity has nothing to do with earthquakes, either as cause or effect.

I have not found the slightest evidence of an electrical disturbance accompanying these earthquakes. I believe that the reports of electric physiological phenomena grew *pari passu* with the diminution of the intensity of the quakes, and with the development of electrical theories in the public press. These reports appear to be biassed by the excitement of the imagination, or by preconceived notions, and their value is much diminished by the unmistakable hysteroidal impress which they bear.

If any precise evidence is wanted of the absence of electrical phenomena, it is to be found in the behavior of all forms of magneto-electric apparatus during the earthquakes. Barring the mechanical disturbances, it will be found that no effect whatever was produced upon these instruments, nor was the magnetic needle in the least affected.

The pathological effects produced by the earthquakes may be grouped under three heads: the *mechanical*, the *nervous*, and the *infectious* or *epidemic*.

First. The *mechanical*. The gross injuries need not be detailed here. All honor to the surgeons who did so manfully their duty in those trying times. I shall mention under this head a severe form of conjunctivitis and keratitis which became very prevalent. My friend Dr. Charles W. Kollock ascribes it to traumatism produced by particles of lime and other débris. The inflammation was frequently accompanied with superficial and painful ulceration of the cornea. In my own case, and, in fact, in the majority of cases it was found necessary to assist the local treatment by the use of stimulants and tonics.

Second. The *nervous* effects. These are well described in the paper of Dr. Porcher. The majority of them were evidently hysteroidal. Of these, some were actually experienced, but others, more particularly the so-called premonitions, were but fabrications of the after-thought, or innocent self-deceptions. The functional disturbances that were not hysteroidal may be set down as symptomatic of shock, of fear, and of a form of vertigo akin to sea-sickness. With these belong the vomiting, the diarrhœa, and the frequent micturition. I have no doubt that the severe shock produced, in some cases, more profound and lasting organic changes in the nervous system. Amongst such, perhaps, may be placed two cases of multiple neuritis that developed within the two days following the great earthquake. One of them was accompanied with pulmonary embolism and gangrene of the lung.

Third. In regard to what I have called the *infectious* or *epidemic* effects of the earthquakes there must be considerable doubts. Certain it is that a mild fever prevailed during the months of September and October, and that it went by the name of *the earthquake fever*. It was characterized by catarrh of the air-passages, irregular pains, some fever, and occasionally gastro-intestinal disturbances and jaundice. Some suspicions of dengue were at first aroused, but they were soon dissipated. The disease was, in my opinion, influenza. Late in the fall of 1885 we had, in Charleston, an epidemic of this disease; this persisted through the winter. The pulmonary complications were quite severe. During the summer months the epidemic gradually subsided. The earthquake, by bringing together so many of the inhabitants from all classes and places, I suppose, gave a wider distribution to the disease. It now assumed a different form. We had the simple

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catarrhal fever with occasional cases of the gastro-intestinal and the rheumatic varieties.

Of course, it is difficult to prove that these effects were not due to exposure. Two facts, however, militate against this view, namely: the frequent presence of symptoms that were not exclusively catarrhal, and the warm and dry weather that prevailed during the seismic period. I may add that the recrudescency of the catarrhal epidemic is culminating at present (December 16th) in an epidemic of pneumonia of low type.

I shall state, in conclusion, that the malarial fevers were unusually prevalent. The mortality statistics show an increase of the number of deaths from this cause over the previous year, during the autumn months. But I do not think that they indicate any unusual severity of the type of these fevers.

I have made an abstract from our weekly bill of mortality, for the months of September, October, and November of this year, for purposes of comparison with the previous year:

No. of deaths from	Fall of 1886.	Fall of 1885.
Apoplexy and cerebral congestions (adults)	20	18
Bronchitis (all ages)	8	7
Acute choleraic diseases (all ages), and dentition	38	22
Other acute gastro-intestinal and hepatic disorders	44	43
Consumption and tuberculosis	87	77
Dysentery	7	0
Malarial fevers	37	17
Typhoid fever	10	7
Pneumonia	14	7
Rheumatism	2	3
Trismus nascentium	35	26
Exposure: earthquake	9	
Exposure and shock: earthquake	31	
Injuries received: earthquake	40	

It is to be remarked that many deaths due to special causes were placed under the general heading of shock and exposure, mainly with the purpose of inducing the people to leave their encampments and return to their homes.

AN ACCIDENT WITH THE "A.-C.-E." MIXTURE.[1]

BY JOHN H. PACKARD, M.D.,
SURGEON TO THE PENNSYLVANIA HOSPITAL AND TO ST. JOSEPH'S HOSPITAL, PHILADELPHIA.

MR. W., æt. forty-four years, was operated on for strangulated hernia June 13, 1886, in a Southern city. Anæsthesia was induced, without any unpleasant symptom, by means of the "A.-C.-E." mixture (one part of alcohol, two of chloroform, and three of ether). A portion of omentum, being adherent, was left in the sac outside of the ring.

He came to Philadelphia in July, and placed himself under the care of Dr. B. Trautmann, who kindly asked me to see him, an abscess having formed close to the neck of the sac. On the 14th this was explored and drained, pure ether being administered by Dr. J. M. Fox.

Later, a detached mass of omentum was detected in the scrotum, and on the 4th of September he was anæsthetized for its removal. He earnestly requested that we would let him take the "A.-C.-E." mixture, saying that it was much more agreeable to him than the ether alone. A pint of the mixture was put up by a druggist of high standing, and about ℥ij were used. Dr. D. Longaker took charge of the administration, which was without mishap.

After this operation, the scrotum swelled considerably, and there was much pain, relieved to some extent by the removal of two or three of the sutures. The swelling, however, remained, and it became clear that it was due to the presence of a mass of blood-clot, which would be only very slowly absorbed. With a view to the removal of this, on the 28th of September Dr. Trautmann administered the mixture from the same bottle, using, as before, a towel folded into a cone. I had nearly finished the evacuation of the clot, which, of course, took but a short time, when I perceived that the patient's face and lips had become ghastly pale, and that he had stopped breathing; I sought for the pulse in his groin, but could not feel it. We instantly lowered his head and raised his feet, and made artificial respiration by Sylvester's method. Dr. Trautmann gave him two hypodermatic injections of brandy. Under this treatment restoration was gradually effected; the operation was finished, and a rapid recovery ensued.

Mr. W. is a man of short stature but vigorous frame, temperate and correct in his habits; his urine is free from sugar or albumen. He had had hypodermatic injections of morphia nightly for some time to allay his pain.

So far as my knowledge goes, only one instance has been recorded in which death is said to have resulted from the inhalation of the "A.-C.-E." mixture. This case occurred in the Pennsylvania Hospital, in the practice of Dr. Hewson.[1] Only a very brief and incomplete account is given of it. It is simply stated that the patient, a robust man aged thirty-five, died in convulsions, which came on before complete anæsthesia had been induced. Dr. Morton, who was present, informs me that the death took place on the operating-table.

Dr. J. C. Reeve, an acknowledged authority on anæsthetics, wrote[2] in 1882 that this case was the only one so far known. Mr. Lister, however, in 1883,[3] says:

"The dread of the depressing effect of chloroform on the heart has led some surgeons to use it mixed with ether, together with some alcohol to produce complete blending of the two liquids. Deaths have, however, occurred under the use of such mixtures, and we have no evidence that they are really safer than undiluted chloroform carefully given."

A few references to published (or unpublished) cases in point would have added to the weight of this statement. Without asserting that such reports do not exist, I can only say that they have escaped my eye or my memory.

I do not overlook the fact that there may have been many cases in which, as in the one I have reported, a fatal result was happily averted, and it

[1] Read before the Philadelphia Academy of Surgery, November, 1886.

[1] Amer. Journ. of the Med. Sciences, October, 1876, p. 415.
[2] Holmes's System of Surgery, Am. ed., vol. iii, note on p. 555.
[3] Holmes's System, 3d English ed., vol. iii. p. 623.

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was never thought worth while to put them upon record. But this remark would apply equally to all other anæsthetics or anæsthetic mixtures.

If Hewson's case be regarded as a chloroform-death, it belongs in the small category of those which have been preceded by convulsions. My own case, on the contrary, was, in onset, symptoms, remedies effectual, and mode of recovery, similar to the great majority of those on record.

Reeve, indeed, says[1]: "Ether, in the human subject may produce death as suddenly, as unexpectedly, and in the identical manner that chloroform does." But, with all respect for his authority, I must say that my own search for such cases among those recorded has been fruitless. In every instance there was either previous disease, or some pathological condition discovered after death, which, at least in great measure, accounted for the fatal result. Thus, in a case reported by Lowe,[2] at first sight very like a chloroform-death, both lungs were found studded with hard, cancerous nodules, the liver was adherent to the diaphragm, and the heart was fatty.

It will be remembered by every one that it was argued in regard to the combination of ether and chloroform, with or without the addition of alcohol, that the greater density of the chloroform, and the more rapid evaporation of the other ingredients, would bring about a change in their relative proportions, so that the patient would come to inhale chloroform almost or quite by itself, or at least that the latter would be in dangerous predominance. In the present instance care was taken to shake the bottle before its contents were administered.

Several leading pharmaceutical chemists have assured me that there is no means of ascertaining the degree of combination or separation of the ingredients of the mixture. An experiment made by myself as to the inflammability of different layers of the liquid was without result.

Although during thirty-three years my experience with anæsthetics has been large, the case now detailed is the first one, if my memory is correct, in which I have myself employed the A.-C.-E. mixture, and it seems to me to afford proof that the dangers of chloroform are in no degree lessened, even by the thorough admixture of alcohol and ether. Until 1864 I used chloroform and ether indifferently; but in that year two accidents (one fatal) to patients under my care made me abandon chloroform almost wholly. I say almost wholly, because it may, under certain circumstances, be preferred, as when, for instance, in an operation on the face it is necessary to use the actual cautery, or to employ gas- or candle-light. It may also answer better for children requiring tracheotomy, as less likely than ether to induce congestion of the lungs. But, in my opinion, it is criminal carelessness to use this powerful and dangerous article without means at hand for combating its effects, if need be: brandy, ammonia, a hypodermatic syringe in good order, and a galvanic or electric battery.

My own conviction is that pure anhydrous sulphuric ether is the safest anæsthetic now available for general surgical purposes. Among the thousands of administrations of it at which I have been present not one death has occurred analogous to those so abundantly recorded from chloroform; nor have I ever seen threatening of such an event. I believe it to be entirely safe, except in cases of albuminuria, or perhaps in those of grave organic disease of the brain, heart, or lungs. In old or feeble persons congestion of the lungs may follow its use. The most unpleasant symptom I have seen caused by it was the epileptiform condition apt to be met with when the administration has been prolonged; but this easily yielded upon the withdrawal of the ether for a few moments, and it has never in my experience entailed any permanent ill effect.

Whatever anæsthetic be given, it is very desirable that the duty of its administration should be confided to an assistant, who should carefully watch its effects, paying no attention to anything else. Especial vigilance is called for in those cases in which the patient, as the saying is, "takes the ether badly."

Although the discussion as to the choice of anæsthetics, so actively carried on a few years ago, has subsided, the question was never definitively settled. It has not, however, lost its importance, and it can hardly be necessary to offer an apology for recording a clinical experience bearing upon one of its phases.

[1] Loc. cit., p. 551.
[2] British Medical Journal, November 17, 1877.

MEDICAL PROGRESS.

COLLECTIVE STUDY OF CENTENARIANS.—An analysis of the results of an inquiry issued by the Collective Investigation Committee of the British Medical Association has yielded the following interesting data:

Age.—Fifty-two returns; average age, about 102½.

Male or Female.—Fifty-two returns; M. 16, F. 36.

Single: Married: Widowed.—Fifty-two returns; S. 11 (of these 10 were females), M. 5, W. 36.

Affluent: Comfortable: Poor.—Fifty returns; A. 3, C. 28, P. 19.

Fat: Spare: Average.—Fifty returns; F. 9 (of these 8 were females), S. 23, A. 18.

Full-blooded: Pale: Average.—Forty-six returns; F. 8, P. 14, A. 24.

Strong: Feeble: Average.—Forty-eight returns; S. 20, F. 12, A. 16.

Figure: Erect or Bent.—Fifty returns; E. 25, B. 25.

Height.—Males: Twelve returns; average, about 5 ft. 8½ in.; one also returned as short. *Female:* Twenty-six returns; average about 5 ft. 3 in.

Weight.—Males: Seven returns; average nearly 138 lbs. *Females:* Ten returns; average about 129 lbs. Respective Weights. *Males:* 182, 165, 147, 140, 120, 112, 98 lbs. *Females:* 196, 154, 140, 136, 126, 126, 120, 112, 112, 70 lbs.

Voice.—Forty-seven returns; loud, 6; clear, 16; weak, 7; full, 3; loud and clear, 8; full and clear, 6; loud and full, 1.

Hearing.—Forty-nine returns; good, 22; indifferent, 17; bad, 9; deaf, 1.

Joints.—Forty-seven returns; natural, 37; stiff, 4; deformed, 3; stiff and deformed, 1; the last was stiff from chronic rheumatism, and deformed from contrac-

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tion of palmar fascia; slightly deformed, 2; one of these was "from rheumatoid arthritis."

Sight.—Fifty-one returns; of these, 34 had good sight; 6 had cataracts, in one case unilateral, in another commencing; in 8 others, failure of eyesight was reported, apparently independent of presbyopia.

Glasses.—Thirty-five returns; 28 used glasses, 7 did not, but of these 4 were returned as "poor," and were possibly unable to read; 6 had used them for 40–50 years, 5 for 30–35 years, 4 for 10–20 years, 2 for 4–6 years, 5 for "many years," 2 for "few years." One had used spectacles for many years, but for the last twelve years had been able to read without them; another had not used them for twelve years; another "not for many years," but one "cannot now get them strong enough."

Digestion.—Forty-seven returns; good, 40; moderate, 7.

Appetite.—Forty-eight returns; good, 36; bad, 2; moderate, 10.

Eater.—Forty-six returns; moderate, 25; small, 9; large, 12.

Number of Meals Daily.—Forty-three returns; average number rather more than 3 daily; the greatest number was 5 daily (in 1 case); the least number was 2 daily (in 5 cases).

Alcohol.—Forty-six returns; none, 15; little, 24; moderate, 6; great deal of beer, 1.

Animal Food.—Forty-one returns; none, 3; moderate, 10; little, 25; very little, 2; much, 1.

Bowels.—Forty-three returns; daily, 26; alternately, 6; irregularly, 11.

Aperients.—Forty-one returns; rarely, 22; never, 14; frequently, 5.

Disposition.—Forty-six returns; placid, 14; irritable, 8; energetic, 11; placid and energetic, 8; irritable and energetic, 5.

Intellect.—Forty-six returns; average, 29; low, 5; high, 11; childish for six years, 1. One was said to be "slow in comprehending questions, but smart in reply."

Memory.—Recent Events: Thirty-nine returns; good, 26; bad, 6; moderate, 7. *Past Events:* Forty-seven returns; good, 39; bad, 4; moderate, 4. One "remembers and will quote a great deal of the Bible," another could "repeat about 100 Psalms correctly."

Habits.—Forty-eight returns; active, 26; sedentary, 15; bedridden, 7; of these, 4 were males and 3 females; one, a male, had been bedridden for 1 year, and one, a female, for 7 years.

Out-of-door Exercise.—Forty-five returns; bedridden, 7; none, 16; of these, one "can walk very well," another "stays in bed in cold weather;" little, 9; one of these "mended the thatch of her cottage at 96, and was always the first home from church, being a rapid walker;" moderate, 1, she "goes to church twice on Sundays;" eight walk out; of these, one "walked four miles yesterday," another "walks daily half a mile, can walk three miles," another is "fond of sawing firewood;" two still work, one of these "attended Hexham market, two years ago;" one "worked in field at 102;" one was "much out."

Smokes.—Forty-five returns; much, 7; four of these were women; little, 2; one was a woman; moderate, 3; one was a woman; none, 32; chews, 1.

Snuff.—Forty returns; none, 37; much, 1; this a woman, who also smoked a little; little, 2; one being a woman, who did not smoke, the other a man who smoked a little.

Sleep.—Forty-four returns; good, 32; bad, 5; moderate, 7. *Number of Hours:* Twenty-nine returns; average, rather more than 8½ hours; 3 slept 12 hours; 8 slept 10 hours; 1 slept 4 hours; and 2 slept 6 hours.

Hour of Going to Bed.—Thirty-five returns; average, about 9 o'clock, one retired at 12 o'clock, one at 11, and 5 at 7 o'clock; 7 were bedridden.

Hour of Rising.—Thirty-five returns; average, about 8 o'oclock; six rose at 6 o'clock, one at 5 o'clock, nine at 10 o'clock, one at 11 o'clock, and one at 4 P.M.

Chest-girth in Inspiration.—Male: Six returns; average, 36¼ inches. *Female:* Nine returns: average, nearly 31 inches. Male and female together, average about 33 inches.

Chest-girth in Expiration.—Male: Five returns; average, about 36⅓ inches. *Female:* Seven returns; average, nearly 30 inches. Male and female together, average about 32½ inches.

Elasticity of Rib-cartilages.—Male: Six returns; distinct. 1; indistinct, 5. *Female:* Thirteen returns; distinct, 5; indistinct, 8.

Pulse.—Twenty-nine returns; average, 74.75 per minute. In some cases, disease of the heart or lungs was returned, and in others the pulse-rate was unusually high, and the condition of the heart and lungs was not detailed; excluding these cases, eleven in number, the average becomes 69.70 per minute. *Regular, Irregular, Intermittent:* Twenty-eight returns; R., 24; Irr., 1; Int., 3. *Large, Small, Moderate:* Twenty-seven returns; L., 9; S., 17; M., 1. *Compressible, Incompressible:* Twenty-eight returns; C., 24; I., 4.

Arteries.—Male: Nine returns; even, 4; knotty, 2; tortuous and knotty, 1; tortuous, visible, and even, 2. *Female:* Twenty returns; even, 8; tortuous, visible, and knotty, 3; visible and tortuous, 2; tortuous, visible, and even, 1; visible and even, 2; tortuous and knotty, 1; tortuous, 2; tortuous and even, 1.

Arcus Senilus.—Male: Seven returns; much, 4; little, 1; absent, 2. *Female:* Nineteen returns; much, 5; little, 8; absent, 6.

Respiration.—Twenty-four returns; average, 24 per minute. Excluding those cases, eleven in number, in which heart or lung disease was returned, or in which the rate of respiration was high, and the condition of the heart and lungs was not mentioned, the average becomes 21–22 per minute. *Regular and Irregular:* Twenty-four returns; regular, 21; irregular, 3.

Teeth.—Forty-two returns; 24 had none, and in 13 the teeth were specified. Amongst the 37 cases there were 144 teeth: upper jaw, 63—incisors, 19; canines, 8; molars, 36: lower jaw, 81—incisors, 23; canines, 13; molars, 45. In five cases the number alone was given. Average (42 cases), 4–5 teeth. In one case they "all came out whole." *Males:* Fourteen returns; 6 had none; average, 4 teeth. *Females:* Twenty-eight returns; 18 had none; average, nearly 5 teeth. Three females had a complete set, and another had 17 teeth; one male had 24, and another 16 teeth.

Artificial Teeth.—Thirty-eight returns; none, 34; yes, 1 (female); many years, 2 (male and female); from 50–90, 1 (female).

Evidences of Failure.—Thirty-five returns; none, 18; failures in 17 cases. *Heart*, 2. In one, "sounds dis-

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tinct, no murmur, very irregular, at one minute beating 60–70, and at another double as fast;" in the other, "circulation feeble, frequently sick and faint, as if she were going." *Heart and Lungs*, 3. In one "heart and lung-sounds weak;" in another, "pulse intermits 6 times in minute, impulse weak, slight bronchitis;" in another, "aortic regurgitation, slight bronchitis." *Heart and Urinary Organs*, 3. In one, "loud systolic *bruit* at base, no appreciable interference with circulation, micturition frequent;" in another, "heart-sounds tumultuous and irregular, micturition frequent;" in another, "heart's action slightly irregular, not discernible in pulse, frequent micturition." *Lungs*, 2. In one, "chronic bronchitis;" in the other, "cough for four months." *Brain*, 3. Senile dementia in two cases; in one, "childish for 6 years;" in the third case apoplexy, right hemiplegia, aphasia, and death shortly after. *Brain and Urinary*, 1. "Aphasia for 14 days, incontinence of urine." *Urinary*, 4. One had "some incontinence for 10 years;" in two others, micturition was slow; and in another, "incontinence."

Micturition.—Male: Ten returns; natural, 7; slow, 2; frequent, 1. *Female:* Twenty-three returns; natural, 18; frequent, 2; incontinence, 3; in one case for 10 years.

CHOLERA AMONG CHILDREN.—At a recent meeting of the Vienna College of Physicians EISENSCHITZ gave the following observations upon Asiatic cholera among children:

He agrees with the opinion of Goldbaum that cholera is a vasomotor paralysis, caused by the specific poison. Except in the case of nursing children, he does not believe that children have a less resistance than adults to infection.

The question of fœtal infection from cholera the observer could not answer; his only post-mortem examination in such cases was negative. Monti belives that a nursing child may become infected through mother's milk; it is more probable that both mother and child are directly infected from the same source.

Artificially nourished children are much more exposed to infection than those who nurse. This is undoubtedly dependent upon the contamination of the foods taken.

The mortality was 55 per cent., which is not greater than among adults; of 7 nursing children all died.

Although prophylactic means were insufficient, no physician or nurse became ill.

Structural changes observed were essentially the same as in adults. The swelling of the solitary glands and of Peyer's patches was more widely extended than with adults. In the typhoid stage of cholera infarcts frequently occurred in the lungs. The glandular alterations were especially pronounced in fulminant cases.

Regarding the prognosis, cases which manifested the usual prodromal symptoms, resulted more favorably than those whose advent was sudden. The predominance of vomiting over diarrhœa was considered a favorable symptom. Temporary improvement the observer did not consider a ground for encouragement, as asphyxia and collapse frequently recurred.

In general, it can be said that the chances of the individual are in proportion to the average rate of mortality.

The duration of the illness was essentially the same with children as with adults.

The algid stage endured in favorable cases from six to thirty-six hours; in fatal cases from nine to fifteen hours.

In cases which recovered the typhoid stage endured six to ten days; with those who died from five to fifteen days. With children less than four years old the algid stage did not exceed twenty-four hours.

The condition, known as typhoid, was characterized by the usual symptoms of typhoid fever, with the addition of persistent vomiting, with dilatation of the stomach, and without singultus: the matter vomited was often acid.

Eisenschitz treated cholera sicca twice. In these cases the stools are often greenish-yellow, instead of rice-water, in appearance; white flecks appear with the stools, and in the intestines abundant rice-water matter is found. Dejections occur during the algid stage without straining, tenesmus is often present during the typhoid stage. Convulsions the observer considered caused by a condition of hydrocephalus, and not peculiar to cholera.

Post-mortem rise of temperature was often seen.

Regarding treatment, the well-known fact that children bear opium badly would prevent the use of a most valuable agent.

In the prodromal period opium is not indicated, and during the early paroxysms it did no good; in the treatment of vomiting hypodermatic injections of one-thirtieth and one-fifteenth of a grain of opium had proved very efficient.

Monti's use of creasote in vomiting and diarrhœa had been repeated with good results, all medication had proved most successful after the high temperature abated.

The careful ingestion of fluids is permitted; warm baths are grateful and very beneficial; the observer had not had good results in the use of stimulants in the early stages.

The treatment of the typhoid stage is tonic and restorative.—*Wiener medizinische Presse*, Dec. 12, 1886.

A SUMMARY OF A TABLE OF OÖPHORECTOMIES.—PROCHOWNICK has collected detailed reports of 22 cases of oöphorectomy, of which 12 operations were made for fibromata and 10 for neuroses.

Of the fibromata 4 diminished in size, 7 disappeared, 1 was extirpated. Among these patients hemorrhage, which had been an indication for the operation, was greatly diminished in 4, ceased in 6, and recurred in 1.

Recovery ensued in 11, in one of whom marked congestion continued for some time. One patient died after extirpation of the tumor from cerebral embolism. Of the 10 patients on whom oöphorectomy was done for neuroses, 3 were not improved, 4 were cured, 3 were improved.—*Archiv für Gynäkologie*, 1886.

AN ARTERIO-VENOUS ANEURISM.—BRAMANN reports the case of a man aged thirty-eight, who had received, a year before he consulted the surgeon, a knife wound in the inner side of the left arm, just underneath the shoulder. The wound healed in the tenth week, but four weeks after its reception a pulsating tumor formed in the left axilla. It increased slowly at first; in the

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fourteenth week after the patient was injured, and on his beginning to work, the tumor grew rapidly, and the arm swelled.

On the patient's reception at the Berlin clinic the injured arm was between one and two inches larger than the other; the subcutaneous veins were tortuous, and at the elbow as large as a finger; the skin was moist, cool, and bluish.

In the region of the scar, and under the anterior border of the pectoralis major muscle was a tumor as large as a hen's egg, which was compressible, pulsated with the heart's systole, and in which murmurs were heard.

The tumor extended below to the enlarged brachial vein, in which a second smaller tumor was situated; above, into the axillary vein; the aneurismal murmur was heard very plainly above the clavicle.

The left radial pulse, which was notably weak, became much stronger on compressing the axillary vein, while murmurs and pulsation ceased in the tumor. The same result followed compression of the subclavian artery, and tumor and vein collapsed.

Bergmann, after fruitless efforts at cure by compressing the subclavian artery, operated for the ligation of the axillary vessels and the extirpation of the tumor. The axillary vein appeared obliterated between one and two inches below the tumor; a measurement of blood pressure taken with a Ludwig's mercurial manometer in the central part of a dilated cutaneous vein on the arm gave a pressure of between two and three inches of mercury, while the peripheral portion of the vein showed from three to three and a half inches, which is the normal pressure in the radial and ulnar arteries.

The axillary artery was ligated with a double ligature, the extirpation of the tumor was difficult, and required the sacrifice of the musculo-cutaneous nerve; a degenerated portion of the ulnar nerve was resected, and the cut edges united by catgut.

Recovery followed without accident in forty-five days. Eight months after the operation, the extremity presented the following abnormalities: slight cyanosis of hand and arm, and prominence of subcutaneous veins, with impaired sensation on antithenar region and four or five fingers. Examination of the venous tumor showed a direct communication with the artery measuring one-third of an inch in length and one-sixth of an inch in width. Between this communication and the place where the vein was obliterated, two veins, a superficial and a deep vein, extended. In a table of one hundred and fifty-eight cases of arterio-venous aneurism fifty-six were found to have followed phlebotomy.—*Centralblatt für die medicinische Wissenschaften*, December 11, 1886.

AN ANTISEPTIC DRESSING.—LUCAS-CHAMPIONNIÈRE gives the following formula:

Iodoform (powdered and sifted),
Powdered quinquinia,
Powdered benzoin,
Powdered carbonate of magnesia, saturated with essence of eucalyptus,
Of each, equal parts.

The powder is applied directly to the wound, and any aseptic absorbent may be used in dressing. After severe operations a fresh dressing will be ordinarily needed in three days; in small wounds eight days may elapse before renewal.—*L'Union Médicale*, Dec. 11, 1886.

INCIPIENT BALDNESS is treated by TILBURY FOX with the following:

℞.—Tinct. nucis vom . . . . ʒiv.
Tinct. cantharides,
Lanoline . . . . . āā ʒijss.
Acid. acetic. . . . . ʒiv.
Aquæ rosæ . . . . . ʒvj.—M.

Sig. Apply with friction.

TREATMENT OF DYSURIA.—MALLEZ recommends the following:

℞.—Terebinthinæ venetæ . . . ʒij.
Camphoræ . . . . . ʒjss.
Ext. opii,
Ext. aconitii . . . . . āā gr.v.

Ft. pil. 60 in num.

Sig. From one to six pills daily.—*Journal de Médecine*, December 12, 1886.

A DISINFECTANT FOR APARTMENTS.—The following will be found useful in the disinfection of houses:

Camphor . . . . . ʒv.
Chloride of lime,
Alcohol,
Water . . . . . āā ʒxij.
Essence of eucalyptus,
Essence of cloves . . . . āā ♏xvj.

Mix; put in a large bottle, and allow to cool.

A few drops, sprinkled upon a napkin, will disinfect a room.—*L'Union Médicale*, December 16, 1886.

THE PURITY OF MID-ATLANTIC AIR.—In the course of an address on the "Action of Microörganisms on Surgical Wounds," Professor F. S. Dennis, of New York, states that during his last trip across the Atlantic he made some experiments to test the purity of the air about 1000 miles from land. He employed capsules of sterilized gelatine, and exposed them for fifteen minutes. One capsule was exposed in the stateroom upon the main deck of the steamer.

Within eighteen hours over 500 points of infection had developed. Two capsules exposed in a similar manner in a cabin on the promenade deck, where the circulation of air was free, showed five or six points of infection each ten days afterward. A capsule exposed over the bow of the ship was found to be entirely uncontaminated. These experiments are on the same line with those of Pasteur and Tyndall upon the mountain air of Switzerland, and, so far as they go, they show the germless condition of mid-oceanic air, and also the need for much more efficient ventilation in the staterooms of even first-class American liners.—*Lancet*, December 11, 1886.

A NEW PARASITE IN BEEF.—WOLF has found in the intermuscular connective tissue of the flesh of oxen a parasite which is apparently the larval form of an ascaris. It is encysted like trichinæ, but is somewhat larger, and is nearly spherical in shape.—*Fortschritte der Medicin*, December 15, 1886.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's Address, No. 1004 Walnut St., Philadelphia.

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SATURDAY, JANUARY 8, 1887.

THE CENTENNIAL OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE foundation of the College of Physicians one hundred years ago marked an era in the history of the profession of Philadelphia, the climax of which was reached this week in the centennial celebration. The last quarter of the eighteenth century saw in Philadelphia a group of physicians, worthy successors of those earnest men who, as friends and co-religionists, accompanied or followed Penn in the settlement of the province. Many of them had been educated abroad, and appear to have been peculiarly fortunate in their intimate association with the leaders of medical thought in Europe. The close relationship of certain of these men with Fothergill, one of the founders and earliest benefactors of the Medical Society of London, doubtless influenced their action in instituting a similar body in America, for we find that the great Quaker physician took the liveliest interest in the medical affairs of the province, particularly in the foundation of the Pennsylvania Hospital and in the establishment of a medical library. Unquestionably, too, the memory of the pleasant gatherings of the Royal Medical Society of Edinburgh, of which many of them were members, stimulated them to imitate it here. However this may be, to-day, we reap the benefit of their wise forethought, and the successful centennial gathering of this week fitly commemorates their services to the profession.

The President did well in making the chief part of his admirable commemorative address a summary of the medical genealogy of the College. A greater glory than the magnificent building she now possesses, a greater pride than the splendid library of nearly forty thousand volumes, and the choice museum, a surer pledge of permanency, is the roll of names of eminent Fellows who have left their impress on American medicine. The College is local, and the property of a local organization, but John Jones, Morgan, Shippen, Rush, Wistar, Dorsey, Dewees, Barton, Chapman, Wood, Hodge, Meigs, Gross, and many others whose names we honor, belong now, not to Philadelphia alone, not to the College of Physicians, but to the history of the profession of this country. The social force and influence which physicians have always exercised in Philadelphia is not a little peculiar, and there is much truth in the statement that "he is, and always has been, relatively a more broadly important personage here than elsewhere." Certainly, physicians have played a large part in our public as well as private history, and they have "sustained in noble succession the prominence of this city in all that lifts our art and its sister sciences above the common level of applied usefulness."

Probably no other city in the Union, and but few in the old world, could have arranged such a display as greeted the guests of the College at the reception on the evening of the 3d of January. A special attraction was the splendid collection of old portraits of our great masters and worthy Fellows, which indicated how dearly their successors cherish their memory.

It is befitting the city which boasts itself as the "civitas Hippocratica" of America that the library of its chief medical society should be the largest in the country, except that supported by the nation at Washington. The rare treasures, the priceless incunabula displayed in the cases told of the enthusiastic bibliophile, without whose labors the development of the profession in this city would never have reached its present grade. The numerous copies of works by Fellows of the College translated into every language of Europe and into several of the Oriental tongues, which were collected in one case, seem to indicate that, if Philadelphia has lost her commercial supremacy she still leads her rivals in the intellectual race.

Amid the rejoicing and festivities, the conferring of the Associate Fellowship upon nine distinguished men was an appropriate recognition of the debt which the College owes the profession throughout the country; and the ceremonies connected with it were characterized by a grace and dignity worthy of the occasion. In honoring these men the College honored itself and added to a roll already long, the names of earnest and devoted workers.

Knowing the history of the College during the past hundred years we can look to the future with confidence, doubting not that in the century upon which we have entered the progress will be as much beyond our conception as is the realization of to-day beyond the thoughts of the original founders.

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NEUROPATHIC JOINT DISEASES.

THE occurrence of joint diseases in persons affected with locomotor ataxia has been carefully studied by a number of neurologists, including Charcot, Weir Mitchell, and Westphal, who have attributed such diseases, as well as spontaneous fractures, to tropho-neuroses, and CZERNY has recently called attention again to this subject in an interesting paper in the *Archiv für klinische Chirurgie*, Bd. xxxiv. Heft 2, 1886. He points out that, in addition to the weakness of the bones which often exists in ataxia, there is an impairment of the muscular sense, which diminishes the support usually furnished to the bones when under strain, even when they are not especially weak, so that they may give way under the influence of forces which they could resist under ordinary circumstances.

In the inflammatory processes of the joints of ataxic patients the diminished power of resistance in the bones also favors rapid degeneration. Likewise, there is an impairment of sensibility which plays an important part in such processes. This impairment of sensibility first affects the nerves of the deeper structures, so that the skin may even be hyperæsthetic while the parts of the joint are so insensitive that motion is permitted when its influence has become harmful.

The diagnosis of this form of joint disease, according to Czerny, rests upon the occurrence of rapid degeneration in acute cases, and of analgesia, excessive exudation, and great destruction of the parts composing the joint in chronic cases.

Czerny describes six cases, but a careful study of them does not appear to us to establish conclusively the point he desires to make. He admits that the diagnosis of neuropathic joint affections is not easy, and in only two of his cases was degeneration of the spinal cord found, and in four it was only suspected.

There can be no question that disease of the spinal cord may exert an unfavorable influence upon pathological processes in the joints, and it is well to recognize this fact; but it would hardly be safe to assume the existence of such a degeneration merely because an acute joint affection runs a rapid course, or because a chronic joint affection is marked by some insensibility of the deep structures, with great exudation and unusual destruction of the parts involved.

This caution is all the more necessary because, as Czerny says, the importance attributed to this factor may seriously affect the legal rights of a plaintiff, or of a defendant, in a suit for damages for an injury. It might happen, also, in case of a suit, that a surgeon who accepts too unreservedly Czerny's opinions might injure the standing of another who has not learned that when the diagnosis of a neuropathic joint affection is made, the treatment differs somewhat from that which would be proper in one in which no disease of the cord was suspected. In neuropathic joint disease Czerny recommends attempting to secure ankylosis in a good position rather than mobility of the joint. Rest is the chief desideratum before there is much destruction of tissue, and before suppuration becomes dangerous; when the latter occurs, the choice lies between arthrotomy, resection, and amputation.

In conclusion, we may say that, while one is not bound to accept fully Czerny's views of this subject, a proper appreciation of them may lead to the recognition of a factor in joint diseases which must be of great consequence wherever it is present.

TONSILLITIS IN ADOLESCENTS.

DR. HAIG BROWN, the medical officer at the Charterhouse School, London, has published a valuable brochure on this subject, which illustrates the importance of carefully studying, in all its aspects, such a common and well-known affection as tonsillitis. The conditions offered by a large public school are particularly favorable for observation, and among the large number of boys between the ages of twelve and nineteen, Dr. Brown found ample material upon which to base some very interesting remarks. The greater liability to the affection during the evolution of the generative organs is illustrated by the fact that 105 of 127 consecutive cases were between fourteen and seventeen years of age. The association of tonsillitis with rheumatism is well recognized, but we do not remember seeing the relationship more forcibly shown than by this writer. Of the 127 cases, from 119 trustworthy information was obtained as to the presence or absence of a rheumatic condition, and of these, 76 gave some history of rheumatism, either personal or in members of their immediate family. 20 of the cases presented what is known as the "rheumatic aspect," a combination of dark hair, a fair skin, red cheeks, and thick lips.

The disease is regarded as a specific disorder, to which septic conditions specially predispose. Some very interesting facts are given illustrating the prevalence of the affection in houses exposed to sewer emanations. The diminished power to resist disease is so produced, assisted by the deteriorating influences of puberty, a damp climate, and rheumatism, and is the usual predisposing reason for attacks of tonsillitis, which are probably determined by cold or contagion. Several very instructive instances are given in illustration of the highly contagious nature of follicular tonsillitis.

By far the most valuable part of these observations relate to the cardiac complications of the disease. Here and there we find a writer who refers to ton-

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sillitis as a possible cause of endocarditis, but, so far as we know, no one has before so clearly brought out this point. A careful examination of the heart was made in 360 cases, of which 14 had previously suffered from rheumatic fever, and were excluded. Of the remaining 345, in 33, or 9.6 per cent., a cardiac murmur was developed. Of these cases, 8 were systolic basic murmurs heard over the pulmonary artery, and all disappeared in four weeks under treatment. 18 were systolic apex murmurs, which developed within three days of the commencement; 14 of these were solitary and of these, 10 disappeared within four weeks; 4 persisted for more than six months; 2 were pericardial friction murmurs, which did not last beyond the seventh day. 1 case had pericardial friction with systolic apex and diastolic basic murmurs. 4 were combined systolic and presystolic bruits. Briefly summarized, of the 345 cases, 8 had endocardial lesions which terminated in chronic valve disease, 3 had pericarditis, 10 had the physical signs of mitral regurgitation which disappeared, and 8 had functional murmurs due to anæmia. Doubtless, we have in this complication of so common a disease as tonsillitis an explanation of certain of the cardiac cases we meet in which there is no history of rheumatism, chorea, or other affection liable to be accompanied with endocarditis. A knowledge of its occurrence should make us watch the heart in this affection, and carefully guard the patient during convalescence should a murmur develop.

THE RELATION OF PHTHISIS TO DISEASE OF THE OVARIES.

ATTENTION has recently been called by FENWICK, in *The Lancet*, for October 16 and 23, 1886, to a possible relation between diseases of the ovaries and diseases of the lungs, which he formulates as follows: Ovarian cystic disease arises in many cases because the patient has a hereditary tendency to degenerative changes, or, in other words, belongs to a phthisical family. He has examined with care the literature of disease of the ovaries, and has not found that any observer has hitherto suggested or proved any family predisposition in such cases. From an analysis, however, of the records of the London Hospital for Women, from 1882 up to the present time, and of two cases occurring in intimate friends of his, with a few isolated cases reported by different authors, in all a little over 150 cases, he has come to the conclusion stated above. He could find reliable data as to the family history in only 60 of these cases, and in 32 of these families phthisis had existed. Other cases furnished some corroborative evidences of the influence of a tendency to phthisis in the subjects of disease of the ovary, so that he includes no less than 42 out of 60 cases in this category.

Fenwick supports his opinion by the fact that phthisical men are liable to disease of the testicle, the analogue of the ovary. He also attaches importance to the fact that caries of the teeth, which is common in phthisical subjects, is also found in a number of patients with cystic disease of the ovary. He believes that cystic degeneration of the ovaries is, like phthisis, frequently hereditary.

One of the most important tests of Fenwick's theory would be to ascertain whether or not women with disease of the ovaries are prone to manifest well-established evidences of phthisis. He produces but little testimony on this point. Sir Spencer Wells, he says, notes incidentally that out of his first 300 cases, 3 died of phthisis within the first two years after operation.

Fenwick does not claim anything more for his theory than that it appears probable. In this we entirely agree with him, and, although we feel that he may be making the mistake of taking coincidence for causal relation, we think he has made out a sufficiently strong *prima facie* case to warrant his appeal to those who shall in the future report cases of cystic disease of the ovaries, to narrate as fully as possible their family history, that more definite opinions may be formed as to the relation to it of a phthisical diathesis.

INTRACRANIAL PRESSURE.

IN discussing compression of the brain in THE MEDICAL NEWS for November 14, 1885, we called attention to some interesting investigations in regard to intracranial pressure which have a decided practical value in considering injuries to the contents of the skull. More recently, in the *Deutsche medicinische Wochenschrift*, of October 28, 1886, there is a report of a communication on this subject, made by KNOLL, of Prague, to the fifty-ninth meeting of German Naturalists and Physicians. In it he described some experiments in which he introduced a canula through the atlo-occipital ligament into the fourth ventricle of the brain in certain animals. By artificial interference with the respiration, he caused variations in the blood-pressure which were accompanied by a corresponding increase in the pressure of the cerebral fluid. But he observed that when the blood-pressure was lowered by bleeding, the pressure of the cerebral fluid diminished more slowly than did that of the blood, so that the brain did not become anæmic as rapidly as any other organ of the body.

If this be proved by further observations and experiments, it will establish a very comforting doctrine. As yet, however, we cannot accept it without reserve, since the details of Knoll's experiments are not at hand, and it is impossible to say how far his deductions apply to man. One important element

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in the case, and one which supports his opinion—although he has not called attention to it—is the fact that the contents of the skull are surrounded by an unyielding wall, so that they cannot collapse as readily as most of the other organs of the body, or admit of the drainage of their contained blood, since this would tend to create a vacuum. It would be interesting to study in this connection the condition of the bloodvessels in the long bones after venesection, so as to ascertain whether or not they too retain a proportionately large quantity of blood when the vessels of soft organs become anæmic.

However this may be, it must be remembered that anæmia of the brain is not the only condition which may interrupt consciousness, or even end life. Mere stasis of the cerebral circulation may produce either of these results, without any alteration in the absolute or relative quantity of blood in the skull. For this reason we must not mistake the significance of Knoll's observations, however interesting they may be, or however important it may be to take them into consideration in studying injuries of the brain.

THE measles epidemic in New York, it is gratifying to be assured, is on the wane, though it is still doing sad work in the tenement-house district, the last week showing 468 cases and 63 deaths. At the same time, diphtheria claimed 40 deaths and 104 cases, and scarlet fever 30 cases and 3 deaths. Measles is quite as prevalent in Jersey City and Williamsburg as here.

ON Wednesday, December 29, 1886, the Training School for Nurses at the Hospital of the University of Pennsylvania was opened. A lecture upon the treatment of fevers was given by the Provost, and a large and interested audience listened to his remarks, and afterward inspected the commodious and tasteful home of the nurses. In the plan of the enterprise, the details of the administration of the school, and the completeness of its equipment it reflects honor upon the wisdom and liberality of those who established it.

A LEGAL case of considerable importance to physicians has just reached a final decision. Dr. Alfred S. Purdy and his son, of New York City, determined that Angelina M. Brown was suffering from smallpox in November, 1879. They reported their conclusion to the New York Municipal Board of Health, and the woman was taken to the Smallpox Hospital. There it was discovered that she had not the disease. She sued the Drs. Purdy for $5000 damages, and a jury in the Superior Court recently awarded her damages. The Superior Court, General Term, decided that the complaint should have been dismissed, as there was a reasonable doubt as to the character of the disease in the beginning, and as it was the duty of the physicians to report the case to the health officers, who then assumed the responsibility of taking her to the hospital.

AT the Long Island College Hospital the chair of Medicine left vacant by the death of Prof. S. G. Armor has been filled by the election thereto of Dr. Frank E. West, an alumnus of that school, of the class of 1876. Prof. West had been for many years the favorite assistant, as well as the intimate friend, of the late eminent teacher, and his promotion to the full professorship has in it the merit of a civil service appointment.

THE ambulance service at the Long Island College Hospital, which has an eventful and useful record, is temporarily under a cloud by reason of a disagreement between the Hospital authorities and the Board of Health, in reference to the selection of ambulance surgeons. The present indications are that the time is coming when the city of Brooklyn will cease to own and run ambulances, and when the various hospitals will each maintain a station of its own, receiving a certain monthly payment from the city for their services to the public.

SMALLPOX has prevailed to some extent in Brooklyn this winter, the disease being imported in the person of a Polish immigrant; a goodly corps of special vaccinators has been diligently at work in efforts to circumscribe the outbreak. The disease has not spread very widely, although in one house as many as eight deaths thereby have been reported.

REVIEWS.

MANUAL OF PHYSIOLOGY. A text-book for students of medicine. By GERALD F. YEO, M.D., F.R.C.S. Second American edition. Philadelphia: P. Blakiston, Son & Co., 1886.

A TEXT-BOOK OF HUMAN PHYSIOLOGY, INCLUDING HISTOLOGY AND MICROSCOPICAL ANATOMY; WITH SPECIAL REFERENCE TO THE REQUIREMENTS OF PRACTICAL MEDICINE. By DR. L. LANDOIS. Second American, translated from the fifth German Edition, with additions by WILLIAM STIRLING, M.D., Sc.D. Philadelphia: P. Blakiston, Son & Co., 1886.

IT is difficult, and perhaps impossible, to name any single text-book which shall properly fulfil the needs of the medical student in his two years study of physiology. At the very beginning of his course, while he is yet helplessly floundering in the waves of new words and new thoughts, it is almost cruel to place in his hands that best of English text-books, Foster's *Physiology*, and bid him comprehend the opening chapter on the blood. His knowledge of organic chemistry, and

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the types of proteids is, to say the least, sufficiently slight to render the descriptions of fibrinogen and fibrinoplastin eminently depressing. Yeo's manual is, perhaps, of all the smaller works the one best adapted to the needs of the typical first year student. So far as functions so marvellously interdependent as those of the human frame may be treated in natural logical sequence, so far is that sequence observed. The study of the functional systems is preceded by an admirably arranged introductory statement of the vital phenomena in general. In spite of the fact that gratuitous difficulties are removed from the path of the student, the book is sufficiently advanced in character to demand close study.

As a supplement to this book, for use in the second year of medical study, and, indeed, for reference in actual practice, Landois's text-book, a work at once compact and encyclopedic, is unquestionably to be commended.

SOCIETY PROCEEDINGS.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

CENTENNIAL ANNIVERSARY.

Commemorative Meeting held January 3, 1887.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. ALFRED STILLÉ related the following

REMINISCENCES OF THE COLLEGE.

He said: We who form a portion of the continuous life of the College, links in the chain of its existence, are corporately, if not corporeally, one hundred years old to-day. But what is a century in the life of an institution? The years that carry a man to his dotage and decay are but the infancy, the childhood, or the youth of the nation, the community, the society, whose longevity may be reckoned, not by years or generations, but by centuries. It is less by the duration of a man's life than by his vigor that his capacity for continued existence must be determined, and this can be gauged only by his achievements. The ability to do must be estimated by what has been done.

The infancy of our College was a precocious one. Its corporate existence began with an infusion of learning and talent among its members out of all proportion to the age of the institution. Many of its original Fellows had been nurtured in colonial times when a trans-Atlantic education was felt to be the necessary complement of the rude, scanty, and disjointed instruction attainable at home. But from the War of Independence the European supplement was less frequently added to the gains of domestic training, and for more years than it is pleasant to number, the chief illumination within the College was furnished by the twilight left by the great luminaries that had sunk beneath the horizon. During the first thirty or forty years of this century, it seemed as if the old scholarly life of the 18th century had ebbed away from it, as it had from the whole medical profession, and its resurrection dates from nearly the same period that witnessed the revival of science and letters in Europe, the French revolution of 1830. During the next decade a number of young American physicians brought from Europe to our greater cities the methods of study and the knowledge they had gained abroad, and it is from that beginning, so insignificant in its mass, that medicine in this country received its first impulse in modern, as it had in remoter times; by it was it leavened, and raised to its present degree of dignity and usefulness.

The College of Physicians at that time was mainly composed of the elders of the profession, who instinctively clung to old and familiar paths, and who resented the intrusion of new ideas as almost impertinent. Age and station then had a much more preponderating influence than at the present day, and the young were as timid in expressing even their well-considered opinions, as the old were prompt to resent and frown down all dissidence and contradiction. There was also a special lack of harmony, if not a positive antipathy and antagonism, between the physicians who had been trained abroad and their pupils, on the one hand, and their elders, on the other hand, who kept to the ancient paths, and were content to plod therein, and who set more value by doctrinal differences and the logomachy of systems, than by the simple, unbiassed observation and comparison of clinical and experimental facts.

As something like this do I recall the aspect of our little province in the medical world when I first beheld it in 1842, awed, perhaps, by its luminaries, who, however, did not eclipse the greater ones that my eyes had grown accustomed to abroad.

Conservatism has always been our dominating spirit, as becomes all institutions that aim at permanency. It has distinguished not only its scientific and ethical features, but also the management of its material interests. As it felt that the latter were too valuable to be hazarded by the vulgarization of its Fellowship or by incautious legislation, so has it always maintained that the physician's office possessed a certain sacerdotal sanctity, and that its special constitution and its relations to the public required specific rules, as much as the commonwealth requires specific laws to enforce the commands of the second table of the decalogue. In 1843 the College framed the Code of Ethics which a few years afterward was substantially adopted by the American Medical Association. Only of late years, and since its moral bonds have become irksome to some who perhaps failed to distinguish between liberty and license, has the soundness of this synopsis of professional right and duties been called in question.

In 1845 the College hesitated to send delegates to the Convention which formed the American Medical Association upon the ground that the chief object of the Convention was not likely to be gained by the means proposed. And although it did afterward take part in this movement, and even an influential one, history has demonstrated the clearness of its foresight by proving the incapacity of medical societies, by the mere force of authority, to lift themselves or the medical profession out of the ruts of routine and the mire of ignorance.

Dr. Stillé then adduced the evidence of sympathetic interest the College has always shown in whatever concerned the progress and interests of medicine and the welfare of the community. It has never been governed by narrow and selfish motives, but has always given ungrudgingly of its wisdom and knowledge for the pro-

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motion of every good work. It has lived up to its motto, "*Non sibi sed toti.*"

It would offend the susceptibility of some who are still among us, if I were to speak of their special acts of liberality, but I may mention two or three which, however prompted, were not carried out by those of our own household. I allude particularly to the silver service; the "Loving Cup;" the copy of Rembrandt's famous picture of "The School of Anatomy," now upon its way from Europe; and the elegant and classical chimney-piece that adorns the "Mütter Museum."

I turn now, in the last place, to give you a short history of the College library. Forty-one years ago on one side of the President's chair there stood a book-case of moderate size. It was painted black, I think, and through its glazed doors could be dimly seen a few hundred volumes varying in size from folios and quartos to humbler types, and all by their musty and dingy bindings proclaiming their long disuse. Among them was a fine edition of Galen, presented by the great Italian Morgagni to his eminent American friend, Dr. John Morgan, with a humorous suggestion of relationship prompted by the similarity of their names.

The ancient receptacle I have mentioned irresistibly suggested the chamber of an Egyptian tomb, where the dry and blackened mummies of the dead repose unchanged for untold ages. If the doors of it were ever opened it must have exhaled a sepulchral odor. But we know that even in the forbidding relics of the ancient dead grain has been found which, under the influence of sunlight and moisture, has germinated and renewed the crops of many centuries ago. So these dry and lifeless tomes, removed to a brighter and livelier atmosphere, and tended by a succession of intelligent and industrious cultivators, have formed the seed of the great harvest that this day surrounds us.

In 1843 there was a sinecure officer in the College, called Librarian. He made annual reports, and in the year mentioned his report was brief and expressive—"The library is seldom used." In 1844 the library committee reported that owing to the "present limited state of the collection," it was not expedient to open it more than twice a month! But in the succeeding year the acquisition of Dr. Otto's library seems to have borne fruit, for it was followed by gifts from various Fellows, among whom Drs. Wood, Hays, Bond, and Moore may be mentioned, and at the same time the College acquired the library of the deceased Medical Society of Philadelphia. In 1849 nearly a score of medical journals were received in exchange for the Transactions of the College, and thenceforward at nearly every stated meeting gifts of books were announced. But even as late as 1855 the library contained only 1700 volumes.

But the most important epoch in the history of the library was the founding of the Lewis Library in 1864, which at once added to it more than 2500 volumes of the choicest works in the finest condition, so that in 1866 the librarian was able to report a total of 9513 volumes. Thenceforth "crescit eundo" literally described the progress of the library.

In this partial retrospect of the history of the College during the last forty years, one can hardly fail to note that in it, as in political and social, and, indeed, every history, progress has depended upon individuals. The hour must come, and the man must arise who, by his voice or his example, stimulates other men to vigorous and fruitful action. As in its infancy the great name of Rush dominated the College, through his inventive genious and foresight, so in its later history George Bacon Wood ruled it by his wisdom and liberality; another has made illustrious his living name by opening a rich mine of intellectual wealth for all seekers after knowledge; and still another is distinguished for his liberality in promoting the social, artistic, and literary tastes of his fellow members. All, by their example, have so warmed the enthusiasm and quickened the sympathies of the Fellows, that this commodious building, this precious scientific museum, aud this noble library have sprung into existence in the brief space of a single generation.

Let us hope that so fair a flower of science shall not languish through indifference, neglect, or indirection, and that at the end of another century our posterity shall be able to speak of us with unstinted praise, and with as sincere gratitude as we now feel toward those who prepared the way for this goodly habitation and temple dedicated to the service of humanity.

THE PRESIDENT then conferred the honor of

ASSOCIATE FELLOWSHIP

on the following gentlemen, and in the following terms:

Henry Pickering Bowditch, M.D., Professor of Physiology in Harvard University; physiologist and statistician.

David Williams Cheever, M.D., Professor of Surgery in Harvard University; a bold and thoughtful surgeon; a teacher with the tongue and the pen.

William H. Draper, M.D., Professor of Clinical Medicine in the College of Physicians and Surgeons, of New York; the trusted consultant; the clinical teacher; the physician and writer.

Robert Palmer Howard, M.D., Professor of Medicine in McGill University, Montreal; clinical investigator; writer, and teacher.

Hunter McGuire, M.D., of Richmond; a surgeon distinguished in war and in peace; teacher of surgery; President of the American Surgical Association.

George Cheyne Shattuck, M.D., LL.D., of Boston; clinical investigator; eloquent teacher; generous benefactor of medical and secular education.

Nicholas Senn, M.D., Professor of Surgery in the College of Physicians and Surgeons of Chicago; investigator in surgical pathology.

Theodore Gaillard Thomas, M.D., Clinical Professor of the Diseases of Women in the College of Physicians and Surgeons, of New York; medical author; teacher; clinical investigator.

James T. Whittaker, M.D., Professor of Medicine in the Medical College of Ohio; clinical teacher; physician, and writer.

DR. J. M. DA COSTA then made an

ADDRESS OF WELCOME.

He said: To me has been assigned the agreeable duty, on an occasion so interesting, of welcoming, on behalf of the College, these masters of our art as Associate Fellows. Our Institution has put on its holiday dress to celebrate the one hundredth anniversary of its foundation, and one of the most pleasing features of the commemorative gathering is the admission of a number of men of

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distinction as Associates. In this, the College is but carrying out the implied wish of its incorporators. It is calling those to it who have assisted "in the prosecution and advancement of useful knowledge for the benefit of their country and of mankind."

What thoughts would have filled the minds of those worthies who founded this College could they be with us now. What rejoicing at the success of their literary and scientific undertaking would these old physicians of Philadelphia have indulged in. What pride would they, patriots formed in the stern school of sacrifice and suffering of a long war, have taken in the fact that from so many parts of their country, grown in these hundred years from sparsely inhabited stretches of land into a teeming, powerful empire,—from cities they were familiar with, but in whose present magnificent proportions they would find themselves wondering strangers; from wildernesses they scarcely knew of even by name, now thriving, populous States,—had come, with a promptitude and rapidity which progress in applied science has alone made possible, those "viri docti et medicinæ periti," they would themselves have delighted in welcoming.

Every age has its impress and its tendencies. The queue, the knee-breeches, the gold-headed cane, the stately manner, the reverence for old wisdom, the classical canon were their emblems, and bespoke that which they declared to be one of the objects of this College—"to cultivate order and uniformity in the practice of physic." Though not blind to your other qualities, it would have been for any near approach to their standard of order and learning, that they would have mainly esteemed you. Our age is an age of zealous investigation and active change. Newly elected Associate Fellows, we find represented in your ranks what in these days we chiefly honor in our many-sided profession. We find learning and order, but we also find love of research, originality, boldness; we note you quick of eye, fertile of resource, independent of thought. And if we have singled you out on this occasion, it is because you are the type we delight in, the true children of our time and tendencies.

Associates, in joining you to us to-day, we bestow on you all this College has to bestow, It gives you full share in all that a century of learning, of culture, of pure aims, of renown, of high tone, most zealously guarded, has done to make it famed and respected. On its part, it takes a mortgage on your past acquisitions, as well as lays claim to a portion of the results of your future work. And when some fresh, thoughtful deduction in practical medicine becomes the theme of every pen; some new, life-saving operation is everywhere discussed; some clear monograph of exhaustive research and wide grasp is by everyone lauded; some ingenious application of physiological experimentation laid before the world; when we hear of a celebrated treatise of a great practical master being translated into yet more tongues,—we shall feel the pride of possession in our Associate Fellow, and rejoicing in his success, claim him, for the College, as among our own. These are the feelings we have toward you, and we now greet and welcome you as sons of this old Institution with all the love of brotherly affection.

The President then adjourned the meeting, and on behalf of the College invited the Fellows to luncheon in the old Museum Room.

THE DINNER.

In the evening the Fellows dined together in the Assembly Room of the Union Leauge. After the cloth had been removed, the President presented the toast of the "Memory of the Founders of the College," which was drunk in silence. Subsequently Dr. Henry Hartshorne read some appropriate verses. The President then offered the toast of "The Fellows of the College," and asked the company to pledge each other in the loving cup, which was passed round. Dr. D. Hayes Agnew responded to this toast.

The toast of the "Associate Fellows" was proposed, and replied to by Dr. T. Gaillard Thomas, of New York. Dr. Pepper then responded to the toast of the "Physician," Dr. Ashhurst, to the "Surgeon," Dr. Parvin, to the "Obstetrician," and Dr. John S. Billings, to the "Medical Societies of America."

The formal toasts of the evening having been concluded, Dr. George C. Shattuck rose and claimed the privilege of proposing a toast and asked the company to drink to the health of the College of Physicians, and to its prosperity and long life. The toast was received with enthusiasm and the President acknowledged the compliment in a few brief remarks.

Dr. Weir Mitchell then read the following

COMMEMORATIVE VERSES.

A Doctor's century dead and gone!
  Good-night,—to those one hundred years—
To all the memories they bear
  Of honest help for pains or tears.

Good-night! a century's good night,
  To such as for our noble guild
Stood firm when death was in the air
  And fear all meaner bosoms filled.

To them that like St. Christopher,
  When north and south were sad with graves,
Bore the true Christ of charity
  Across the battles' crimson waves.

Good-night to all that shining line,
  —Our peerage—yea, our lords of thought.
Their blazonry unspotted lives
  Which all the ways of honor taught.

A gentler word,—as proud a thought,—
  For those who won no larger prize
Than humble days well lived can win
  From thankful hearts and weeping eyes.

Too grave my song,—a lighter mood
  Shall bid us scan our honored roll,
For jolly jesters gay and good,
  Who healed the flesh and charmed the soul,

And took their punch, and took the jokes
  Would make our prudish conscience tingle,
Then bore their devious lanterns home,
  And slept, or heard the night-bell jingle.

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Our century's dead; God rest his soul!
Without a doctor or a nurse,
Without a "post," without a dose,
He's off on time's old rattling hearse.

What sad disorder laid him out
To all pathologists is dim;
An intercurrent malady—
Bacterium chronos finished him—!

Our new-born century, pert and proud,
Like some young doctor fresh from college,
Disturbs our prudent age with doubts
And misty might of foggy knowledge.

Ah, but to come again and share
The gains his calmer days shall store,
For them that in a hundred years
Shall see our "science grown to more."

Perchance as ghosts consultant we
May stand beside some fleshly Fellow,
And marvel what on earth he means,
When this new century's old and mellow.

Take, then, the thought—that wisdom fades,
That knowledge dies of newer truth,
That only duty simply done
Walks always with the step of youth,

A grander morning floods our skies
With higher aims, and larger light,
Give welcome to the century new,
And to the past a glad good-night—!

The recital of these verses which elicited prolonged applause, concluded the festivities of the evening.

The feature of the Dinner Menu, which was in book form, was the interspersion of apposite quotations from Shakespeare. On the cover was engraved the seal of the College, and below this was inscribed—

"Feasts so solemn and so rare
Since, seldom coming, in the long years set,
Like stones of worth they thinly placed are,
Or captain jewels in carcanet."

Sonnet 52.

On the reverse was the accompanying medallion portrait of the first President of the College, Dr. John Redman.

"He was a scholar, and a ripe and good one;
Exceeding wise, fair-spoken, and persuading."
Henry VIII. IV. ii.

A RECEPTION

was held in the Hall of the College on Monday evening, January 3d. The building was beautifully decorated with flowers and the walls were adorned by a very large and interesting collection of portraits of deceased Fellows of the College and others.

Among the guests present from a distance were Drs. Fordyce Barker, of New York; John S. Billings, of Washington; Traill Green, of Easton; A. M. Pollock, of Pittsburg; Nicholas Senn, of Milwaukee; Hunter McGuire, of Richmond; James T. Whittaker, of Cincinnati; H. P. Bowditch, of Boston; T. Gaillard Thomas, of New York; W. H. Draper, of New York; D. W. Cheever, of Boston; George C. Shattuck, of Boston; R. Palmer Howard, of Montreal; Robert T. Edes, of Washington; R. F. Weir, of New York; J. R. Chadwick, of Boston; A. Jacobi, of New York; George M. Sternberg, U. S. A.; C. C. Lee, of New York; F. Lange, of New York; F. Donaldson, of Baltimore; E. Darwin Hudson, of New York; Ezra M. Hunt, of Trenton; R. F. MacDonald, of Montreal; A. H. Halberstadt, of Pottsville.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, December 8, 1886.

DR. CHARLES T. POORE read a paper on the

TREATMENT OF INVETERATE TALIPES EQUINO-VARUS BY OSTEOTOMY.

The majority of infants with this deformity are, and can be cured by mechanical treatment, but there are a certain number of persons, who, either from the marked degree of the deformity, neglect, or inefficient treatment, are unable to walk on the plantar surface of their feet, and in whom locomotion is labored and painful. Even in children it is sometimes impossible to hold the foot in a proper position without the aid of an apparatus after years of careful treatment. With the brace applied they are able to walk on the plantar surface of their feet, but as soon as it is removed the anterior portion of the foot reverts to its abnormal position.

The cause of this failure to relieve the deformity is not clearly understood, or, if acknowledged, is not appreciated. In order to understand the cause of this inability to hold the anterior portion of the foot in a proper position, and, when an operation is called for, to judge of the best means of correcting the deformity, a consideration of the anatomy of congenital equino-varus is necessary.

Dr. Poore has examined the bones taken from a child eight months of age, who exhibited this deformity.

The patient had been under treatment for some months, and, at the time of death, the anterior segment of the foot had been brought into its normal position, and held there as long as the splint was on, but on its removal immediately reverted to its abnormal position. The tendo Achillis had been divided.

In comparing these bones with those taken from a child of eight months the following points of difference are noted. The angle at which the neck of the astragalus is set upon its body in the bone from the deformed foot is 55 degrees, while that of the normal bone is 28 degrees; the external surface of the neck of the abnormal is much longer than that of the normal bone—the articulating surface of the head is much smaller in the

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former than in the latter, The anterior articulating surface of the os calcis is directed forward and inward in the bone from the deformed foot, while in the normal it is directly forward. Its anterior portion is curved outward in the deformed foot, but is straight in the one from the normal foot.

It seems established that the obliquity of the neck of the astragalus is a normal condition in infants at term; that in varus, as a rule, the amount of this obliquity is increased; and that in the adult bone the neck is set upon the body of the bone at a mean angle of 10.65 degrees. That in varus the anterior portion of the os calcis is curved with its convexity looking outward, and that its anterior articulating surface is directed forward and inward. It is evident, then, that during growth the axis of the neck of the astragalus, in the normal foot, changes from an angle of 38 degrees to one of 10.65 degrees, with that of the longitudinal axis of the body.

The pathological changes found in the majority of cases of congenital talipes equino-varus may be described as an exaggerated obliquity of the neck of the astragalus, and a curvature of the anterior portion of the os calcis, together with its elongation; and that the head of the astragalus is held in its abnormal position by short ligaments; that the scaphoid is carried upward and forward by the head of the astragalus, and held there by the abnormal condition of the ligaments; that the muscles have nothing to do with its causation, nor do they act as much of an obstacle to the restitution of the foot. Exception should, however, be made to muscles entering into the formation of the tendo Achillis.

It should be stated that in one dissection reported by Messrs. Parker and Shattuck of congenital equino-varus, the obliquity of the neck was only 31 degrees, being less than in the normal bone.

If the foregoing facts have been correctly interpreted, the indications for the treatment of congenital equino-varus seem simple. The object of mechanical treatment must be to stretch the ligaments upon the inner side of the foot, which hold the scaphoid and head of the astragalus in their abnormal position, so that the obliquity of the astragalus may undergo the diminution incident to normal growth, or, in other words, assume the form of the adult astragalus. There is still another element, in some cases at least, which prevents a perfect restitution and that is the elongation of the os calcis; even should the deformity of the astragalus be entirely overcome, the outer border of the foot would be longer then its inner, and thus continually tend to force its unsupported anterior segment inward.

In those cases which have resisted all known methods of mechanical treatment, the question arises, What operation is the best to restore the foot to a useful position?

The only operation that has of late years commended itself to surgeons, is a cuneiform osteotomy or resection of the tarsal bones in front of Chopart's joint; all others have failed to accomplish the end for which they were performed and have been abandoned.

Tenotomy of the ligaments commends itself as one from which good results may be expected in infants, because it attacks the structure which is the chief obstacle to the normal development of the astragalus, but it has no influence on the curvature of the os calcis, and this, it would seem, is the cause of imperfect restitution in other more promising cases.

In looking at a dissection of a foot affected with the deformity under consideration, the following points suggest themselves:

1st. That the inability to correct the deformity was due to changes taking place in the astragalus and os calcis.

2d. That in order to bring the anterior portion of the foot into its normal position, the curvature in the os calcis must be renewed and the neck of the astragalus shortened, so as to allow its head to point in the normal direction and thus carry with it the scaphoid and other tarsal bones.

To accomplish this the following operation was performed: An incision was made from a point one and a half inches in front of the tendo Achillis in the outer aspect of the foot forward to the middle of the cuboid bone, and down to the tendons of the peroneus longus and brevis; these should be raised or pushed out of the way. Another incision beginning from the middle of the first and corresponding to the neck of the astragalus was made directly upward. The tissues were then raised from the bones, and the periosteum incised over that part of the os calcis from which it was desired to remove the wedge. With a chisel a V-shaped piece of bone was taken away base outward, and its apex extending to its inner border; a wedge was then removed from the neck of the astragalus of such a shape as to allow the anterior portion of the foot to be brought outward and upward.

The periosteom was united with catgut and the skin with several wire sutures, because the latter hold longer and give better support. An aperture was left posteriorly for the insertion of a drainage tube, a plaster-of-Paris bandage applied extending from the toes to above the knee, and the foot placed in a corrected position. The wound was dressed with iodoform and gauze.

The size of the V-shaped interval left after the removal of the wedge of bone should be sufficient to allow the anterior portion of the foot to be placed in a proper position without any tension on the tissues on its inner aspect. I think that a subcutaneous division of the ligaments on the inner border of the foot, where they are tense, would facilitate the correction.

The dressing should be as light as possible, not bulky, otherwise it will be found difficult to apply the plaster-of-Paris bandage firmly. A little over-correction does no harm.

The advantages claimed for this operation over that of removing a wedge from in front of the medio-tarsal joint are:

First. It is anatomically and mechanically correct.

Secondly. Less amount of bone has to be removed, because the operation is performed nearer the apex of a triangle.

Thirdly. No joint is entered, and consequently the foot is left in a more normal condition.

Fourthly. It does not practically shorten the foot in front of the ankle-joint.

The class of cases suitable for this operation are:

First. Those patients who have reached the age of five or six years with the deformity unrelieved, and who have walked on their feet, and in whom the parts are rigid and the deformity marked.

Secondly. Those cases in which, although the anterior portion of the foot can be brought into position, yet

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require an apparatus to retain the foot in its normal position after years of careful treatment.

Thirdly. Those cases in which the obstacle to restitution is due to elongation of the os calcis; perhaps in these patients the removal of a small wedge from that bone would accomplish the object.

Case I.—W. S., ten years of age, was admitted into St. Mary's Hospital, September, 1885, with congenital talipes equino-varus of the left foot. The deformity had never been treated. He walks on the outer aspect of his foot. The parts are very rigid, and with the hand no change can be made in the position of the anterior portion of the foot. There is no motion at the ankle-joint.

In October, the tendo Achillis was divided, and Bradford's instrument for forcibly rectifying club-foot used, but no impression could be made in the position of the foot. In November, another attempt was made with the same instrument, but with no better success.

On January 14, 1886, I performed the operation advocated in this paper, and brought the anterior segment of the foot into a straight line. There was considerable oozing of blood for a day, so that the dressings had to be changed, and in a week some slight suppuration. During the treatment he had an attack of scarlet fever. The wound all closed within a month, but he was not allowed to use his foot for eight weeks. At date of discharge from the hospital he was able to walk well with his foot flat on the floor. There was but little motion at the ankle-joint. The line of the inner and outer border of the foot is perfect, with not the slightest tendency to inversion.

Case II.—A. S., eight years of age, was admitted into the hospital in November, 1885, with double congenital talipes equino-varus. His tendons have been cut and he has been under mechanical treatment for years, but with no benefit.

The os calcis is in its normal position, but the anterior portion of the foot is turned at a right angle to the os calcis. Three attempts have been made to correct the deformity with Bradford's instrument, but without making any impression on the position of the foot.

December 21, 1885. A wedge was removed from the os calcis and neck of the astragalus in the same manner as mentioned above.

Wound was all closed in a few weeks. Temperature never over 100°.

February 6. The same operation was performed upon the right foot.

At date of discharge patient was able to walk with the sole of the foot flat on the floor. The patient has always had some paresis of the extremities, so that he has never had good use of his limbs. He walked at time of discharge quite well. But there is a tendency of the whole foot to roll inward. I do not think that the correction was as perfect as in the first case.

Case III.—W. J. C., aged fourteen, has been under treatment at the hospital at times for several years. She has had a congenital talipes equino-varus of left foot, which has been corrected, so that the anterior portion of the foot can be brought into its normal position with the hand, but immediately on removal of the support turns somewhat inward. She has worn a brace for several years; with it she gets along pretty well, but without it the foot is almost useless.

February 28, 1886. A V-shaped piece of bone was removed from the os calcis and neck of the astragalus, and the anterior portion of the foot placed in a straight position. Plaster-of-Paris splint and dressings of gauze and iodoform, as in the other cases, were used. Owing to illness, I did not see the patient again for a week. She then had a high fever, the foot was swollen, and the wound looked blue and sloughy. The splint was removed and the wound cleansed. The fever continued, and she died on the twelfth day of septicæmia.

DR. STIMSON asked whether in the latter case it were possible to raise the foot in dorsal flexion inside of a right angle.

DR. POORE replied that he thought there was limited motion in the ankle-joint.

DR. STIMSON remarked that the basis of Bœckel's operation was removal of the astragalus because that motion was interfered with, and a limp was the necessary consequence.

DR. POORE said that he did not see how that could be, as he was certain that some of the cases in which cuneiform osteotomy had been performed had normal motion at that joint. Another objection to the cuneiform osteotomy was made, viz., that it interfered with the growth of the foot; cases had been reported in which good results had been secured at first, but, as the child grew, the foot failed to grow in proportion.

He thought it was probably because the operation had been performed anterior to Chopart's joint, and thus an inch and a half had been removed from the foot. He said it could not be known how much shorter the foot would be on reaching maturity, but he thought it better than the cuneiform operation in front of Chopart's joint.

DR. BRIDDON presented the stomach and wounded portion of intestine of the following case of

LAPAROTOMY FOR PISTOL-SHOT WOUND OF STOMACH; PERFORATIONS OF SMALL INTESTINE NOT RECOGNIZED DURING LIFE; DEATH.

Lizzie W., a patient brought to the Presbyterian Hospital, at 6.30 P. M., November 20, 1886, during the service of Dr. Briddon. She reported that she accidentally shot herself while holding in her right hand a revolver, which she supposed was unloaded. She was dressing at the time, the ball passing simply through her underclothing. The shooting occurred about two hours before admission. On admission patient was not in collapse. Her pulse was 80, full and regular, and her temperature was 101.4° F. Soon after her arrival she vomited a large amount of a dark, thick material, in which were large pieces of undigested meat. This material was examined microscopically, but no blood was found. Percussion over the abdomen gave slight dulness on the left side as compared with the right. Patient was calm and talked readily about the accident. The abdominal wound was three and a half inches above the umbilicus, and one-half inch to the left of the median line. The surface of the abdomen was thoroughly cleaned, wound dressed antiseptically, and a small ice-bag applied. Patient was placed in bed and given a hypodermatic of morphiæ sulph. gr. ⅙. It was decided, owing to the absence of urgent symptoms, to delay any operative measures until the next morning.

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Morning of November 21. Temperature 102° F. General condition of patient about the same as last night. Slight tympanites present, but no marked increase of pain.

Operation, by Dr. Briddon, November 21st, at 11.45 A.M. The abdomen and thighs were made antiseptic previous to the administration of ether. When the patient was under its influence the abdominal wall was again washed with a solution of hydrarg. bichlor., and afterward by a saturated solution of iodoform in ether. The sponges were kept in warm solution of hydrarg. bichlor., 1 : 5000. An incision was made from the ensiform cartilage to the umbilicus through at least three inches of fat. When the muscular layer and posterior sheath of the rectus were divided, another thick layer of fat was laid bare, on division of which the peritoneum was exposed, nicked, and divided the whole length of the wound. On pressing the stomach downward some bloody serum was found, and in the deeper veins a fluid, which, it was thought, had a milky appearance. The cavity was so deep that an attempt was made to obtain a better view by drawing out the omentum and transverse colon and laying them, enveloped in warm flat sponges, on the lower thoracic wall. This failing to give sufficient room, the opening in the abdominal wall was enlarged downward to a point midway between the umbilicus and the pubis.

The omentum and colon were now returned to the abdominal cavity, and maintained there by flat sponges; the stomach was again examined, and there was found a small rent in the omentum close to its attachment to the greater curvature. This was enlarged by the fingers sufficiently to admit a thorough inspection of the space behind the stomach, where there were found a few coagula of blood. After a prolonged search and examination at that portion of the greater curvature from which the omentum was detached, there were found two linear slits with ragged edges communicating with the interior of the stomach, one of these being situated anterior, the other posterior to the insertion of the omentum, and not half an inch apart.

At this time the condition of the patient was critical, and the indications were to conclude the operation as quickly as possible. Hypodermatics of camphorated ether were used. The perforations were closed by two lines of Lembert's suture. As there was a little adherent omentum at either end of the second row of sutures, a deeper suture was carried through at that point so as to include this, the toilet of those parts above the transverse colon carefully made, and some grumous blood, and what was supposed to be stomach contents, removed. At the suggestion of Dr. Lange, tamponades of iodoform gauze were introduced, one into the space behind the anterior layer of the omentum, the other into the space outside of it.

The abdominal walls were brought together by a number of silver-wire relaxation sutures and intermediate ones of catgut. The superficial dressing consisted of iodoform and bichloride gauze. The operation lasted two hours. The patient's condition was not very promising, and she was immediately placed in bed and surrounded by hot bottles.

Patient recovered from her ether without vomiting. 8 A.M.: temp. 103.2° F.; pulse rapid but regular. Hypodermatic stimulations of camphorated ether given every two hours until the pulse became better. Rectal stimulations of brandy and water given every four hours. 12 midnight: temp. 102° F.; pulse 140; resp. 36.

Nov. 22. Morphia hypodermatically given frequently enough to prevent restlessness. Temperature ranging between 101° F. and 103° F. 4.30 A.M.: temp. 101° F.; pulse 142; resp. 37. 8.30 A.M.: temp. 104.2° F.; pulse 145; resp. 34. Stimulation continued. Urine contained albumen fifty per cent. and large granular casts. 12 M. temp. 105° F.; pulse 145; resp. 24. 12.30 P.M: a portion of the iodoform gauze removed from abdominal opening. 3.45 P.M.: more gauze removed and two rubber tubes passed to bottom of wound. Ice coil bag used on head and abdomen. 5.30 P.M.: temp. 106° F.; pulse 142; resp. 28. 8.30 P.M.: temp. 106° F.; pulse 150; resp. 17; patient was very restless and delirious. 9 P.M.: temp. 105.4° F.; pulse 150; resp. 15. Pulmonary œdema has begun. 10 A.M.: pulmonary œdema has increased rapidly during past hour; patient is moribund; the œdema is very marked. 11.45 P.M.: patient died.

Autopsy.—Abdomen prominent, both from the thickness of its walls and from distention of the intestines. The abdominal cavity was opened through the original operative incision. Signs of acute general peritonitis at once presented. The intestines were adherent, by recent fibrinous exudations, to the walls of the abdomen and to one another; and the great omentum was attached to the greater curvature and anterior wall of the stomach. In the pelvic cavity there were about ℥viij of a red watery liquid; while in the upper portion of the abdominal cavity there was quite a large collection of a watery, greenish-brown liquid, thought to be fecal. The adhesions were easily separated and the original wound of the stomach with its catgut sutures found. A small portion of the great omentum was found quite firmly attached to the lower part of the closed incision.

The stomach wound was in the greater curvature about two inches from the pylorus. The stomach wound was entirely closed, resisting the pressure of water poured into the stomach. Following the small intestine past the duodenum, four wounds were found in the upper portion of the jejunum, all within three inches. The course of the bullet could be easily traced by several spots of ecchymosis in the tissues. Its direction was downward, backward, and outward. It was found anterior to the left kidney, in the left axillary line, and about one inch below the line of the umbilicus. It was a short No. 32.

The heart was dilated, with flabby walls. The kidneys were slightly enlarged, and showed acute parenchymatous nephritis on gross inspection.

During the time that the stomach wound was being sewn up, the indications for a speedy operation were urgent; and it was probably due to this cause that the wound of the intestine was not recognized.

DR. SANDS asked whether, in laparotomy for gunshot wounds, unless the ball is found or the viscera inspected, there is any means of knowing the distance the ball has traversed, or of knowing the number of perforations.

DR. BRIDDON said that in future he should regard none of his operations as complete until the whole of the intestinal tract had been examined from one end to the other. The duration of the operation was two

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hours. There were at least between three and four inches of fat outside the abdominal muscles, and a layer of one inch and a half in the fascia behind the upper end of the sheath of the rectus. It would have been utterly impossible to make anything like a satisfactory examination without prolonging the section downward toward the pubes.

THE PRESIDENT remarked that he had never had any opportunity of testing it, but thought the introduction of some bland, colored fluid internally into the wound might develop the existence of apertures in the neighboring portion of the intestine, which could not be conveniently handled; as, for instance, the duodenum; but that even, he thought, might not be a positive test, but yet it might assist in the examination.

DR. BRIDDON remarked that there was one peculiar condition in these wounds of the stomach; and that is that they are perfectly linear; when he first saw them he did not suppose they were wounds at all, they looked like linear extravasations of blood. The wounds of the intestines, as a rule, are round or ragged, and sometimes are circumscribed, which are frequently more destructive to the gut or the tissues of surrounding parts; in fact, the wounds of the stomach had been overlooked, and not regarded as wounds; and it was not until the edges were separated that they were discovered.

THE PRESIDENT asked if he thought that was not owing to the interval between the receipt of the wound and the operative procedures; he thought that union could take place in that time, as he had seen firm union in six hours.

DR. SANDS replied, but not of the intestines, he thought; in the case spoken of, the intestines were not matted to the stomach or omentum.

OSTEOMA AND OSTEO-SARCOMA OF BOTH SUPERIOR MAXILLÆ.

DR. STIMSON presented a bony tumor involving both superior maxillæ, which had been removed that day from the girl who had been presented at the previous meeting. The tumor was almost solid bone. At its back was a small, soft outgrowth, like a cap, covering an area of about two square inches. The removal was done rapidly, without much hemorrhage. but the shock was great. The child had rallied under active stimulation and was alive when he left the hospital, but her condition was precarious. He would report at another meeting the details of the operation and the result.

CORRESPONDENCE.

AINHUM.

To the Editor of THE MEDICAL NEWS,

SIR: I have just noticed that Professor F. J. Shepherd, of Montreal, in the January number of *The American Journal of the Medical Sciences*, states in his interesting article, entitled "A Short Account of the Disease called Ainhum," that only two cases previous to his have been reported in North America. The disease is certainly a rare one, although many more cases would have been reported if it was recognized by or familiar to the general practitioner. I reported a case of "Ainhum" in this journal for June 13, 1885, in an article on "Unna's Dermatological Preparations." This case was only reported as *one* in the table of statistics of the American Dermatological Association for 1885, although it might have very properly been reported as *two*, since the negro man, more than a year before he came to the Polyclinic in Baltimore, had lost a little toe from the same disease.

Within a few weeks of the time when this case showed itself, as so often happens, another negro man, suffering with exactly the same trouble in the little toe of his left foot, presented himself. This was the second case reported at the 1885 meeting of our Dermatological Association. Neither of these cases was properly diagnosticated by other physicians who saw them. It is on this account, perhaps, that this disease is so rare. It is also a fact, as Professor Shepherd says, that some dermatologists doubt there being any such distinct disease. To this number I do not belong. The writings and reported cases of others, with those which have come under my notice, have sufficiently proved to me that the disease is one "*sui generis*."

Very respectfully,

ROBERT B. MORISON, M.D.

BALTIMORE, Dec. 30, 1886.

AGARIC IN THE SWEATING OF PHTHISIS.

To the Editor of THE MEDICAL NEWS,

SIR: Dr. N. S. Lincoln called my attention to the powerful influence of pulverized agaric to control the sweating of pulmonary phthisis; since then I have used it in five cases, with the greatest success.

In the first case I prescribed the powder in ten grain doses at bedtime. Owing to its cathartic effect I reduced the dose to five grains. Continuing this for a week, all sweating ceased. I now, in this case, only use it when a slight moisture of the skin during the night warns the patient that he may be going to have a return of the sweat. In one case I had to repeat a five grain dose every two hours, three times one night; no cathartic effect resulted. I call your attention to this remedy because, when I first ordered it I found great difficulty in obtaining the smallest quantity, either of the powder, the alkaloid, or the fluid extract. The remedy, while so effectual in controlling the sweating, did not help the cough or produce drowsiness.

ARMISTEAD PETER, M.D.

3044 O. St., N. W., WASHINGTON, D. C.
December 20, 1886.

BERI-BERI.

To the Editor of THE MEDICAL NEWS,

SIR: The paper of Dr. Seguin on Beri-beri in your issue of December 18th, calls to my mind an outbreak of disease which occurred several years ago on a Provincetown bass fishing vessel, and which I, having seen two of the cases, reported in the *Boston Medical and Surgical Journal*, 1881, ii. p. 400, under the head of "A Curious Endemic." I was entirely at a loss at the time as to the real nature of the disease. Dr. Costello, of Vevay, Indiana, expressed the opinion that the cases were Beri-beri (*op. cit.* p. 577), an opinion which I then could not share, but which I now believe to have been correct. Out of the crew of nineteen men fifteen were one after another attacked by pain and numbness

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of the hips, which was soon followed by œdema involving not only the legs but also the trunk to a greater or less extent. One man died; the rest recovered sooner or later. Careful investigation failed to reveal any cause to which the outbreak could be assigned. I repeat that I am now satisfied that the disease was Beriberi. At that time this disease had never been reported as occurring in this country except in a number of sailors from a Brazilian man-of-war treated in a hospital in San Francisco, nor was it known at that time that Beriberi is a peripheral neuritis.

Yours very truly,

FREDERICK C. SHATTUCK.

BOSTON, December 22, 1886.

NEWS ITEMS.

SURGEON-GENERAL GUNNELL, in his report to the Secretary of the Navy, invites attention to the condition of the Medical Corps of the Navy. Its vacancies have not been filled for several years, resignations, deaths, and retirements have depleted it more rapidly than candidates have been obtained. The bureau has not been willing to lower the standard of requirements; and it is impossible with the present inducements offered, to find young medical men possessing the necessary qualifications who are disposed to become medical officers of the navy. The Army Medical Department has qualified applicants far in excess of its needs, attracted by better pay, well-defined rank, and more satisfactory professional position. Since 1870 more than thirty young medical officers have resigned (three of them to enter the army corps). He says he cannot too strongly recommend that prompt measures be taken to increase the advantages and improve the condition of this department.

DR. A. C. BERNAYS has been appointed by the St. Louis Board of Health consulting surgeon of the City and Female Hospitals.

A LIST OF PATENT MEDICINES, the importation of which the Russian Government has decided to prohibit, has recently been published. It consists of about 800 preparations of English, American, French, and German origin, the English or American numbering nearly 100. Pills, plasters, hair restorers, cough drops, medicated foods, ointments, and many miscellaneous preparations for a great variety of purposes are all classed together in one long medical *index expurgatorius*. The list appears to have been drawn up by a committee of Russian physicians, and even such remedies as taraxacum and podophyllin have been struck out.

CHINESE TREATMENT OF CHOLERA.—The Chinese have a rather radical cure for cholera. A Shanghai paper says that on July 22 a Chinaman employed on one of the steamers was taken ill, apparently with cholera. The following is the course which was adopted, according to the paper from which we quote: "His friends immediately sent for a native doctor. This individual had with him a box containing some long needles, and these he used on the patient. A needle was driven some distance into the man's head, near each temple, and again behind his ears. In each case bleeding followed. Needles were also driven into the lips, both sides of the chest, both sides of the stomach, and also into the pit of it. The doctor then scraped the skin of the man's throat till it looked like the neck of a turkey. This violent treatment had the desired effect, and in a few hours afterward the man was quite well, and eating his midday meal with evident relish."

DECREASE OF THE ENGLISH DEATH-RATE.—The English Registrar-General shows, from a review of the mortality of England during the ten years (1871–80), that the mean annual death-rate has fallen to 21.27 per thousand, the lowest average since civil registration began. With this general fall is an increase in the death-rates in the later periods of life. This is also significant of improved tenure of life, for it shows that a larger proportion of persons live to be old enough to die in the later periods. Dr. Ogle gives the credit of the lessened death-rate among young people to improved sanitation, which has removed many fruitful sources of mortality, while by aiding the survival of weakly persons it may have had a tendency to increase the death-rate of the later periods. The changes in the death-rates, Dr. Ogle adds, "have given to the community an annual addition of 1,800,047 years of life shared among its members; and, allowing that the changes are the direct consequence of sanitary interference, we must regard this addition of nearly two million years of life as an annual income derived from money invested in sanitation."

LEAD-POISONING THROUGH HOME-MADE WINES.—The fact that an article is "home-made" is usually a sufficient guarantee of its purity and wholesomeness, whatever other qualities it may lack; but an exception to this general rule has just been discovered by Dr. D. Campbell, the medical officer of health to the Calne Local Board. It appears that, for many years past, Dr. Campbell has had occasion, about the months of August, September, and October, to attend many severe cases of acute and subacute lead-poisoning, the source of which he could not ascertain. The drinking-water, the beer, the tea, the coffee, and bread, as well as the various cooking utensils, all fell under suspicion and analysis, but with only negative results. A few weeks ago, however, seven severe cases—two almost fatal—occurred simultaneously in Calne and the neighborhood, and careful inquiries by Dr. Campbell elicited at last from one of the patients the fact "that her husband had drunk some home-made rhubarb-wine, which she herself had made, and which she was sure could not contain any poison of any sort, as she was very careful in selecting and cleaning her rhubarb; and, as for the sugar and barm, they were all right; besides, the vessel was a beautifully clean, glazed, earthenware pan, in which she steeped it for a fortnight or three weeks to ferment." Here Dr. Campbell at once saw the solution of the problem that had so long been puzzling him. The glaze on these earthenware vessels contains as much as 60 per cent. of white or red lead, and, during the process of fermentation, the acids of the rhubarb, or of any other fruits used, with the acetic acid generated, act on the glaze, dissolve the lead, and form acetate, or sugar of lead, which is a powerful irritant poison when taken even in

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small doses for any length of time. Analysis of ten samples of various home-made wines collected by Dr. Campbell, showed the presence of lead in large quantity in eight; one (parsnip), which was made in a galvanized iron tub, contained iron; and one, which had been made in an ordinary boiler, was free from lead and iron. One sample, which was five years old, and two samples, which were two years old, contained lead. Various chemical tests, applied to the earthenware vessels that had been used showed whence the lead had been obtained. As high as the liquor had reached in the vessel, the glaze was more or less dissolved off. On acetic acid and iodide of potassium being applied, a clear yellow spot of iodide of lead was produced; and, on ammonium-sulphide being applied to the denuded part of the pan, a distinct black line was immediately formed, clearly showing the presence of lead in the glaze. It is not an uncommon custom in country districts for persons who have large gardens and much fruit to make considerable quantities of these wines, from rhubarb, parsnips, red and black currants, sloes, damsons, elderberries, etc., for use by the men in harvest-time. It is, therefore, important that they should have the timely warning of the danger that lurks in those "beautifully glazed earthenware pans." Doubtless, wooden vessels would be quite as convenient for these domestic brewings, whilst they would be free from the risk of lead-poisoning.

GIFT TO THE PASTEUR HOSPITAL.—The Emperor of Russia has sent a magnificent donation of forty thousand roubles ($20,000) toward the erection of the proposed Pasteur Hospital, in Paris. With this new addition, the hospital fund now amounts to $320,000, a sum sufficient to erect a fine building.

MEDICAL SECTS AND CLINICAL INSTRUCTION IN PUBLIC HOSPITALS.—An interesting article appeared recently on this subject in the *Boston Medical and Surgical Journal*. The homœopathists of that city petitioned the managers of the City Hospital for equal privileges in that institution with the regulars. The trustees considered the request with great fairness, and deliberated long and carefully before making an answer. Circulars were sent out to all institutions where physicians and surgeons of both schools were supposed to be on the attending staff, to learn the practical workings of this arrangement in other places. This dual arrangement was found to exist in only two institutions, so far as answers were received. And in these two instances it was by no means satisfactory. Thereupon the trustees replied to the petitioners that the granting of the request would necessitate radical changes in the management of the hospital.

Three possible plans suggested themselves. Homœopathic practitioners might be added to the attending staff, with a full share in all the latter's rights and privileges. Certain wards in the present buildings might be placed under the control of the petitioners, or new wards might be constructed for them. The trustees were not empowered to make such a radical change in management, as the adoption of these plans would necessitate. The petitioners were, therefore, courteously referred to the proper authorities, namely, the City Council.

In regard to clinical instruction, it was decided that the attending surgeons might operate before the students in the amphitheatre on certain days, and that all physicians and all matriculants of one year's standing, at a legally established medical college, might be admitted. This rule was held to apply to female students. The operator might, if he chose, request the withdrawal of students of either sex in certain cases requiring exposure. No male visiting students were to be allowed to witness any operation on female patients requiring exposure of the genitalia. Students, not exceeding twenty in number, might accompany a member of the staff in his daily rounds.

NOTES AND QUERIES.

SYME'S ABDOMINAL TOURNIQUET.

To the Editor of THE MEDICAL NEWS,

SIR: The abdominal tourniquet, which usually passes under the name of Syme's, will be found figured in the London *Medical Record* for April, 1825, and is the invention of Mr. H. Searle, a surgeon in London, over sixty-two years ago. A. H. A.

GASTROTOMY.

To the Editor of THE MEDICAL NEWS,

SIR: In connection with the report by Prof. Bernays of his successful gastrotomy and his table of similar cases, it may be of interest to your readers to learn that in the diary of John Evelyn there is mentioned a similar successful case. In August, 1640, Evelyn visited Leyden, and while there saw the anatomy school, theatre, and "repository." Of the latter he thus speaks: "Amongst a great variety of other things, I was shew'd the knife newly taken out of a drunken Dutchman's guts by an incision on his side, after it had slipped from his fingers into his stomach. The picture of the chyrurgeon and his patient, both living, were there."

Sincerely yours, WM. WATKYNS SEYMOUR.

135 THIRD ST., TROY, Jan. 3, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 1, 1887.

ANDERSON, F., *Passed Assistant Surgeon.*—Ordered to U. S. Steamer "Thetis."

AUZAL, E. W., *Assistant Surgeon.*—Detached from Relief Steamer "Independence," and ordered to Coast Survey Steamer "McArthur."

GREEN, E. H., *Passed Assistant Surgeon.*—Detached from Naval Laboratory for temporary duty on Relief Steamer "Independence."

GATEWOOD, J. D., *Passed Assistant Surgeon.*—Ordered to Naval Academy January 5, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 28, 1886, TO JANUARY 3, 1887.

KOESPER, EGAN A., *Major and Surgeon*, U. S. A.—Granted leave of absence for two months, to take effect about January 1, 1887.—*S. O. 297, A. G. O.*, Dec. 27, 1886.

PHILLIPS, JOHN L., *First Lieutenant and Assistant Surgeon.*—Granted one month's extension of his leave of absence.—*S. O. 297, A. G. O.*, Dec. 27, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, JANUARY 15, 1887. No. 3.

ORIGINAL LECTURES.

INTERSTITIAL NEPHRITIS, WITH HYPERTROPHY OF THE HEART AND HEMORRHAGE INTO THE BRAIN AND NASAL MUCOUS MEMBRANE.

Abstract of a Clinical Lecture delivered at the Montreal General Hospital.[1]

BY R. L. MACDONNELL, M.D.,
PROFESSOR OF HYGIENE IN MCGILL UNIVERSITY AND PHYSICIAN TO THE MONTREAL GENERAL HOSPITAL.

GENTLEMEN: It is my purpose this morning to occupy your attention with the consideration of the clinical history of a case which you all have had an opportunity of watching for the last six months or more, the physical signs of which you have had repeated opportunities of examining for yourselves, and you have noted from day to day the steady progress of the morbid processes. The patient I allude to is Eliza H., now in No. 24 ward, a small, spare woman of about forty years of age, who entered the General Hospital on the 9th of September, 1885, complaining then of certain definite symptoms—symptoms which ought to have led and did lead us directly to the diagnosis of the disease. These were increasing debility, a slight cough, frequent and severe attacks of epistaxis, sickness, and vomiting, usually at its worst in the early morning. And in addition to these, for two months previously her feet had been swollen.

Now let us consider the meaning of these complaints of hers. Her age is that for visceral disease; diseases of the kidney and liver and malignant disease belong to this period of life. The physical examination of the lungs will tell us the meaning of the cough, but the combination of morning vomiting, bleeding of the nose, and dropsy of the feet is very significant, and points to renal disease, more especially that form known as the contracted kidney. Non-traumatic epistaxis is always a symptom deserving of close investigation; occurring, as in our case, in a person of forty, it always means mischief. The venous system is overloaded, or the arteries are brittle, or the heart is enlarged and too strong for the arteries, hence we meet with it as a symptom in portal obstruction when the venous channels are all too full, and in heart diseases, more especially when the left ventricle is hypertrophied, and, lastly, in Bright's disease, where two causes work together. Not only is the heart-muscle too strong but the bloodvessels are too weak, and so breakages are apt to occur in weak places; one of these is the nose, the other the brain, as we shall presently have an opportunity of seeing.

Sickness at the stomach and morning vomiting occurring in a person of forty, should excite suspicion. There are three common causes. Pregnancy is one, but that, it has been ascertained, is not her condition. Alcoholism is a common and often an overlooked cause of this kind of dyspepsia, especially in the form of dram drinking. We are assured of her temperate habits. Visceral disease is the third main cause, and this leaves us to investigate the question as to which organ is the seat of disease. In the very early stages of contracted kidney as well as in an early stage of interstitial hepatitis, we meet with morning nausea and vomiting. It will rest with the remainder of our examination to decide as to which of these conditions is present.

Œdema of the feet points most commonly to cardiac complications. Remember the broad rule that dropsy of the feet alone means heart, dropsy of the belly alone means liver, and dropsy of all the body means kidneys.

The illness altogether dates back two years, ever since she came to this country. Previously she had always been in very good health. For the last seven years has been widowed. Had several children, with hard labors, and four miscarriages.

The very first symptom which made its appearance, was dyspnœa upon exertion, which was soon followed by dropsy of the feet, a slight cough; night sweats, and loss of flesh; occasional epistaxis, and the morning vomiting. For the relief of these she entered the Montreal General Hospital two years ago. It was found noted in the case book, that, although there was evidence of cardiac hypertrophy, there was none to show that the kidneys were implicated. In the summer of 1885 she was again a patient here, and came for the first time under my care. She was then slightly anæmic, the muscles flabby and soft, the tongue moderately coated, the bowels constipated. The pulse beat at ninety to the minute, but its character was noteworthy. It was unusually full and strong, hard and incompressible; in fact, it was the "pulsus durus et tardus et magnus," the renal pulse. Such a pulse would make one suppose that there existed a hypertrophied heart, and such, indeed, was the case; for the impulse was strong and heaving, and pulsation was visible in all the superficial arteries. The apex beat could be felt just inside the left nipple line in the left intercostal space, and the area of superficial cardiac dulness was correspondingly increased.

On auscultation, no murmur was heard, though at times it was observed that the first sound was accentuated. Both sounds were unusually loud. Physical examination of the lungs and abdomen yielded negative results.

We were now able to exclude liver and lung disease from our diagnosis. A hypertrophied heart existed, probably without valvular disease, a condition not very often met with apart from disease of the kidneys. To determine this the urine must be examined. The total quantity passed per diem was in excess of the normal. The fluid itself was of normal color, with a heavy mucous cloud. Sp. gr. 1.020; acid reaction; no sugar. On adding nitric acid, and boiling, the urine becomes slightly

[1] Delivered in the regular course of Clinical Lectures in the Summer Session of 1886.

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cloudy, and when allowed to cool and settle, this cloudiness sinks and resolves itself into a very distinct sediment. Hyaline casts in small numbers were found on microscopical examination, together with a considerable quantity of renal epithelium and oxalates.

From this examination the important fact of the presence of albumen is learnt. What, in this case, is the likely cause? It depends upon disease of the kidney, because there is evidence of kidney degeneration in the presence of hyaline casts. Otherwise it might be argued that the condition of the heart caused the albuminuria, as is indeed often the case. Moreover, the symptoms not only point to renal disease generally but to one particular form, that known as interstitial nephritis or the granular kidney. The distinctive points in the history, as given so far, being 1. The initial symptoms, the dyspnœa the first symptom as it often is, the gastric disturbances, the epistaxis, the œdema of the feet. 2. The condition of the circulatory organs, hypertrophy without valvular disease, and generally increased arterial tension. 3. The urine is characteristic and makes the diagnosis almost certain. The large quantity, the low specific gravity, not so low as commonly noted in such cases, but still low, and the small amount of albumen. In the other form of chronic nephritis known as the large white kidney, which closely resembles the disease of which we are speaking, the amount of urine is smaller and the albumen is in it in large proportion. And, lastly, casts of the hyaline variety were found. The presence of hyaline casts with albuminuria may be taken as a sure indication of structural renal disease.

The ophthalmoscopic changes so frequently met with did not occur in our patient.

During the summer of 1885 the progress of the disease was stationary, but in the early autumn severe stomatitis set in, accompanied by such depression of the general strength that a fatal result from exhaustion at one time seemed imminent. There was extensive ulceration of the mucous membrane of the mouth, the gums receded from the teeth leaving the teeth loose, so that some of them had to be removed. A large ulcer threatened to destroy the floor of the mouth and gave rise to several severe hemorrhages. This is an uncommon affection, and, so far as my knowledge goes, has no connection with the renal disease.

Mrs. H. having recovered from the stomatitis, left the hospital and went into service.

So far, then, we have the history of a case of granular kidneys with hypertrophied heart and rigid vessels. What are the probabilities of such a case? A too strong heart with too brittle arteries: a break is likely to occur somewhere. She did well until last February (1886), when she found her left hand very weak, and a few days after noticing this she awoke one morning to find her whole body numb. Shortly afterward cramps set in in both limbs, but after a time the left side became entirely helpless. She remembers nothing further until she found herself back again in the hospital for the third time. What was the nature of this seizure? Was it embolic, hemorrhagic, or uræmic?

It is likely to have been embolic, on account of the heart lesion, a strong suspicion having always existed of the presence of valve disease, but hemorrhage was much more probable. In chronic Bright's disease, especially that form of it which in this case we believe to exist, there is a chronic affection of the vessels, the result of which is that they become brittle and unyielding, a little extra force, and they break, and hemorrhage occurs. This change in the vessels, of the nature of which your instructor in pathology will inform you, is accompanied by high arterial tension, giving rise to a pulse the characters of which have been already described. Now both these conditions are accompanied by a hypertrophied heart, so that I am correct in saying that hemorrhage is a likely event, and such is the result of observation in such cases. The vessels give way where least supported, that is most commonly in the soft structure of the brain itself, or in the mucous membrane of the nose. You must remember that in the latter situation hemorrhage has already occurred.

As to the uræmia having been the cause of the seizure, I think it unlikely. There were no convulsions observed, which is the form of attack commonly adopted, and there was distinct and persistent hemiplegia, a remarkably rare occurrence in uræmia, so rare that you need not take it into consideration.

We must, therefore, add to our diagnosis hemorrhage into the right side of the brain. On the 18th of February, the day of her third admission, the patient was in a condition of semi-coma with left hemiplegia. The mouth was drawn to the right side; the tongue deviated to the left; pupils sluggish; left arm powerless, and devoid of sensation; left leg paretic. Plantar and patellar reflex both present. Sonorous râles were heard in both interscapular legions, but in other respects there were no changes in the physical signs. The amount of albumen in the urine had greatly increased, and the hyaline casts had become more numerous.

In this condition our patient remained for two months, the hemiplegia gradually disappearing until she could raise the left arm to the chin, when a condition of chronic uræmic poisoning set in, and in that state she now lies.

When we made our visit a week ago we found the patient in a very serious condition. She complained of severe headache and oppressive drowsiness, the two symptoms by which, in most cases, fatal uræmia is ushered in. On closer examination it was found that she had had slight tremors in the affected arm and leg, which lasted but a few moments. Since that time she has remained in a condition of chronic uræmia, the sleepiness and the headache remain, and it was noted that the latter was especially painful in the front of the head, a characteristic of uræmic headache. At times, additional hemorrhages occur from the nose, and there have been lately several profuse ones. The specific gravity of the urine has become lower, being now 1.010, and albumen is present in much larger proportions. Her condition is now critical, another cerebral hemorrhage and a fatal result may ensue, or, what is more likely, the uræmia may deepen, and death in a comatose condition occur.

Postscript.—The death of the patient in a comatose condition occurred some two weeks after the delivery of this lecture. Both kidneys were contracted, the heart hypertrophied. There were a few spots of atheroma in the aorta, and the mitral valves were decidedly roughened. In the right hemisphere of the brain the remains of a large blood clot were found, showing the cause of the hemiplegia.

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ORIGINAL ARTICLES.

FURTHER OBSERVATIONS ON THE BLOOD IN CASES OF MALARIAL FEVER.[1]

BY W. T. COUNCILMAN, M.D.,
ASSOCIATE IN PATHOLOGY, JOHNS HOPKINS UNIVERSITY.

IN view of the frequent publications which have of late been made in this field, it will not be necessary to give more than a cursory review of the literature. Omitting the publications of Klebs and Tommasi Crudeli on the bacillus malariæ, the first publication in which an organism is described differing from this and apparently belonging to an altogether different group of organisms, was made by Lavaran in 1881. He described in the blood of malarial patients an organism which he named the oscillaria malariæ. It appears under four forms, which, though differing from one another in size and shape, he regards as different stages of development of the same organism. He describes them as bodies No. 1, 2, 3, and 4, respectively.

Body No. 1. Usually of a crescentic shape, slightly longer than a red blood-corpuscle, with pigment granules in the centre which are generally arranged in circular form.

Body No. 2. Small circular bodies smaller than a red corpuscle to which they are usually attached, sometimes occurring singly, at others in groups of two or four. They contain pigment granules arranged in a circle.

Body No. 3. Somewhat smaller than a red corpuscle, of round or slightly irregular outline, pigmented in the centre, and provided with three or four long cilia by means of which they move rapidly in the blood. In addition to these ciliated organisms there are free cilia which move rapidly through the blood.

Body No. 4. Similar to body No. 3, but has no cilia, and apparently represents the cadaveric form of body No. 3.

Lavaran supposes the free cilia in the blood to be the adult form of the organism, the other forms representing stages in its development. In the scheme that he forms the cilia develop in bodies No. 1 and 2, finally pierce the enveloping membrane, remaining attached by one end (body No. 3), and after a time sever their connection with this and become free. The hull remaining after the escape of the cilia is body No. 4.

Next to Lavaran's, the most important publication is that of Marchiafava and Celli made two years later. These authors describe as constant in the blood of malarial patients an amœboid organism, whose habitat is inside the red blood-corpuscles. Its most striking feature is the amœboid movements. It changes both its shape and relative position inside the corpuscle, and is always found during the paroxysm of intermittent fever in patients who have not taken quinine. Its size varies in wide limits, sometimes pigment granules are found irregularly distributed through it, especially if the blood examination is made at the termination of the paroxysm. In addition to this body they saw the crescents discovered by Lavaran and ciliated organisms, the latter but four times in the first forty-eight cases examined and not once in one hundred and twenty cases examined afterward. They regard the amœboid organism, the credit for the discovery and exact description of which certainly belongs to them, as the pathogenic organism in the disease, and have named it the plasmodium malariæ.

In an article which appeared in the *Medical Record*, for May, 1886, Dr. Sternberg reports a case in which he discovered the plasmodium in blood taken from a patient in the beginning of a paroxysm of intermittent fever. In a paper read before the Association of Physicians and Pathologists in June, 1886, I have reported sixteen cases of acute intermittent fever, in all of which blood taken during the paroxysm contained the plasmodium. All these observations were made on acute cases and *only* the plasmodium was found.

During the present autumn good opportunity was given me for a further study of the blood, there being an unusual number of cases of malaria at Bay View Asylum, which were kindly turned over to me by Drs. Atkinson and Rohé, the physicians in charge. In all, 80 cases were examined, some of these on ten or more separate occasions and others but once. The 80 cases embraced all the forms of malarial disease common to this section. I have divided them into cases of intermittent fever, remittent fever, malarial cachexia, and comatose malarial fever, the *fievre comateuse pernicieuse* of French authors. The blood in most cases was examined fresh, although numerous examinations were made after drying on the cover slip, and subsequently staining with some of the aniline colors.

The cases of intermittent were nearly all of the tertian form, only a few, 4 in all, were quotidian. There is considerable difference in the blood in intermittent fever depending on the length of time from the beginning of the attack. In the first days of the attack plasmodia are found only during the chill. They are small, and extremely difficult to see, the difficulty being increased by irregularities on the surface of the red corpuscles and a vacuolation, or what appears to be this, inside of them. They may or may not be pigmented, the pigmented forms being seldom found in the first few paroxysms, but later most of them are pigmented. The plasmodia appears as pale homogeneous masses inside the red corpuscles. They are either round or irregular in shape, the irregularities taking the form of round knob-like projections. Their size varies from one-third to one-fourth the diameter of the corpuscle up to a size almost or wholly filling the corpuscle, which in this case is larger than ordinary and almost completely deprived of pigment. Sometimes the corpuscle apparently contains two or more of these bodies, but on staining it is seen that the apparently isolated masses are connected by extremely slender protoplasmic filaments.

The index of refraction of these bodies is almost the same as that of the blood corpuscle which contains them, and they are most easily seen when round. The most remarkable thing about them is their

[1] Read before the Clinical Society of Baltimore, November, 1886.

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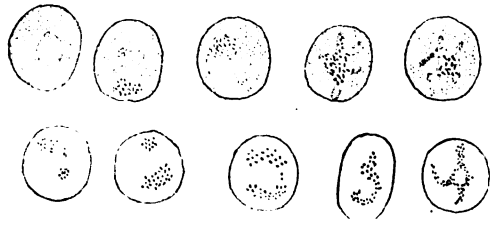
amœboid motion. This is readily seen, and takes place with about the same rapidity as the movements of the ordinary fresh water amœba. While watching them I have seen them disappear, and then slowly reappear in the corpuscle. This is easily explained by their spreading out in a thin layer, their refraction then being so low that they cannot be distinguished from the surrounding corpuscle. As they contract and become thicker they again become visible. In such cases the appearance of amœboid movements will settle the question. Some care is necessary in collecting the blood. The cover-slip should be clean, a very small amount of blood be placed on it, and applied immediately to the slide. When the amount of blood taken is so large that the corpuscles lie over each other, or when they are in rouleaux, it will be impossible to see the bodies. They are much more readily seen in stained preparations. These are made by drying a thin film of blood on the cover-slip, taking care to have not more than a single layer of corpuscles, heating the cover, and staining with some one of the aniline colors, for which purpose fuchsin or methylene-blue will give the best results. At this early stage of the disease, the bodies are not found in the period of apyrexia, and appear to be most numerous at the height of the algid stage.

After the patient has had several chills, the bodies are found also in the interval, but in greatly less numbers than in the paroxysm. They are much more easily seen, and present numerous differences from those just described. The small non-pigmented forms are found, but, in addition, larger ones, which almost or entirely fill up the body of the red corpuscle. These larger forms are always pigmented, the pigment generally taking the form of minute black rods. It may be irregularly distributed through the body, or collected in a mass at one side. The corpuscles containing these large bodies are generally slightly swollen and very pale, at times apparently entirely wanting in color. The pigment renders the detection of these bodies a matter of comparative ease. In using the Abbe illuminator, the diaphragm may be thrown out entirely, and only the pigment sought for, and, when this is found, the character of the body containing it may be ascertained by replacing the diaphragm (Fig. 1). The pigment granules often exhibit the most marked Brownian movement. The amœboid movement can be readily followed even without the use of the diaphragm, by observing the relative position of the pigment masses. In addition to these bodies, several times bodies resembling the larger forms of the body No. 2, of Lavaran, were found.

FIG. 1.



The lower row represents the pigmented plasmodia when looked at without the diaphragm. The upper line with the diaphragm in place. $\frac{1}{20}$ homogeneous immersion.

Only two cases of well-marked remittent fever came under observation. In both of these, and in all the cases of malarial cachexia, bodies were found which differed from those just described. In preparations of the blood, taken at any time, long bodies usually curved in the form of a crescent, were found. These bodies are highly refractive, homogeneous, with sharp outlines, and always contain pigment. This is usually collected in a bunch in the middle of the body. In a few of the bodies the mass of pigment was in the centre, and from this long lines radiated toward the extremities. Most of the forms are slightly curved in the form of a crescent; they are from one and a half to three times as long as the diameter of a red corpuscle, and not wider than the half of this diameter. Though they are narrower at the ends than in the middle, the ends are not pointed but slightly rounded. While this is their general character, they present considerable irregularity, some being nearly round, others elongated and straight. It was in the oval ones that the radiating arrangement of the pigment was most frequently found. They are free in the blood and have no power of motion; they are most generally found in the midst of clumps of red corpuscles. In several cases a faint, delicate line, curved the other way, was seen connecting the ends of the crescents. Marchiafava and Celli also describe these crescentic forms, and suppose them to be developed from the plasmodia. (Fig. 2.)

FIG. 2.

Various forms of crescents. $\frac{1}{20}$ homogeneous immersion.

In two cases the crescents were found in the blood at the same time that the red corpuscles contained plasmodia. These were two cases which had come into the hospital with intermittent fever, which ceased under the influence of good food and a placebo mixture composed principally of tincture of gentian. There were abundant plasmodia in the blood during the entire period that the chills lasted; they became fewer with the appearance of the crescents, and three days after the last chill they had disappeared entirely, but the crescents remained as long as the patient was under observation.

All the cases of malarial cachexia were persons who had lived in a malarial country, coming principally from the packing-houses of Hartford County, and from the large peach farms in the lower counties. Most of them had suffered from repeated attacks of intermittent fever, and presented all the appearances of malarial cachexia, anæmia, enlarged spleen, slight icterus, etc. Although most of these

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cases were kept from quinine while under observation, none of them developed acute forms of malarial fever. The number of crescents varied much in the different cases. In one case of remittent fever with comparatively high temperature, splenic tumor, and slight icterus, they were so numerous that, often twelve to twenty could be counted in a single field of the homogeneous immersion. In the other case of remittent fever they were not so numerous. In the cases of malarial cachexia they were not so numerous as in the cases of remittent fever. It could not be said that the number of them bore any exact relation to the severity of symptoms. One of these cases in which they were well marked left the hospital in a state of comparative vigor after a long course of iron and tonics, and on my last examination, made the day he left, they were found in considerable numbers. In one case, with large spleen, marked anæmia, general malnutrition with œdema of lower extremities, they were present in extremely small numbers. Their numbers did not vary much from day to day. These bodies seem to be peculiar to forms of malaria other than intermittent fever. In not one case of tertian or quotidian fever were they found. They were found in cases where the chills had stopped under slight tonic treatment and better diet. In most cases where they were found, they continued during the entire stay of the patient in the hospital. In one case they seemed progressively to become fewer in number, and when the patient left the hospital but a single one could be found in the examination.

Four cases of the pernicious comatose form of malarial fever were investigated. This is a form of fever which is rather rare in and around Baltimore, and still more rarely recognized. Seven cases of it have come to the autopsy table at Bay View in the last two and a half years. Five of these were brought to the institution in a state of coma, two developed in the house. All of the cases had about the same symptoms: a sudden attack, coma which became gradually deeper, and fever rarely going above 102°. In most of these cases there was albuminuria.

Of the four cases seen this fall, three were fatal. In one case the blood was examined on the admission of the patient, and the diagnosis made. He was given at once sixty minims of the solution of quinine and urea, and after a few hours fifty minims of the same solution. On the following morning his condition had much improved, and after large doses of quinine for ten days, he was able to leave the hospital. In one of the fatal cases the blood was examined before death, and the diagnosis made, but in spite of the vigorous use of quinine hypodermatically he died. The patient, however, had been comatose for forty hours before the examination of the blood was made. In another case the examination was made directly after death and the condition diagnosticated.

In all of these cases the crescentic bodies were found in great numbers, along with other bodies which were seemingly identical with the hyaline bodies found in the capillaries after death. In the case which recovered there was some diminution in the number of crescents from day to day, but the small round pigmented bodies disappeared entirely. The characteristic lesions were found after death. The cortex of the brain was a dark chocolate color, the liver and spleen much enlarged and deeply pigmented. Microscopically the characteristic hyaline bodies were found in immense numbers in the internal organs, particularly in the brain and spleen.[1]

Often an appearance similar to segmentation was seen. Instead of the single hyaline body with the pigmented centre, it seemed to be split up into a number of much smaller bodies, four to eight small stained bodies were found together, all apparently enclosed in a capsule. One case differed from the others in the small amount of pigment which was found in the hyaline bodies. In all the cases a few non-pigmented forms could be found, but in this they were nearly all unpigmented. When very thin sections of the spleen, made by embedding portions of the organ, were examined, the numbers of these bodies found almost exceeded belief. The tissue was literally packed with them, and in numbers they could only be compared with the bacilli found in the same organ in cases of anthrax. Although numerous crescents were found in the blood examined during life, none were found in the organs after death. In the blood examined during the autopsy only the hyaline bodies and some imperfect forms of crescents were found.

Though the bodies here described leave little doubt in the mind of the observer that they are foreign to the organism, and could not have arisen in consequence of any transformation of protoplasm, there can be no doubt as to the character of the ciliated bodies. These with the crescents were the most frequent forms seen by Lavaran. They were also seen by Marchiafava and Celli in four of the cases examined by them. These ciliated bodies are from one-third up to one-half the diameter of a red blood-corpuscle. They always contain pigment, have sharp outlines, and about the same refraction as the crescentic organisms. The pigment is either arranged in a circle or distributed through the mass. In the latter case it shows the most active Brownian movement. The cilia vary in number; usually there are but two, but in some cases as many as four were found. They appeared always to be arranged on one side of the body. Their length is three or four times that of the body to which they were attached. They are thin, delicate filaments with slight nodular swellings at intervals, and they most always terminated in a small node. They are best seen when moving slowly. When their motion is rapid only a glimpse can be caught of one now and then, as it comes across the focus of the microscope; and when they are not in motion they can be seen only with the greatest care in focussing.

Several times in the same preparation with the ciliated bodies free cilia were seen. These appeared to be the same size as those attached to the bodies, and like these had small nodes along them. They moved rapidly through the blood, sometimes with a spiral motion, at others with a lashing motion similar to that of a spermatozoon. (Fig. 3.) In their on-

[1] American Journal of the Medical Sciences, April, 1885.

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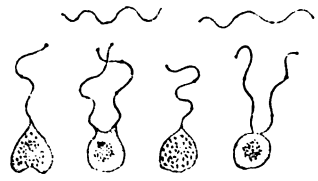
ward motion they often came in contact with a red blood-corpuscle and would violently indent this, or they would agitate a whole group of corpuscles. The motion of the cilia, both when attached and

FIG. 3.



Ciliated bodies and free cilia. $\frac{1}{2}\frac{1}{0}$ homogeneous immersion.

when free seemed to have a certain rhythm: they would move slowly at first, the motion increasing until it became very rapid; then it would become slower and nearly cease, again to become very rapid. In addition to the motion of the filaments, a wave-like motion of the periphery of the body was often seen.

The description of the ciliated bodies given by Lavaran agrees with what I have observed, but he figures them as somewhat larger than they actually are. They were found in eleven of the seventy-six cases, and in every form of the disease. In one of the cases of comatose fever examined before death they were seen, but not in any of the examinations made after death. In addition to this case they were found in one case of remittent fever, in five cases of typical intermittent, and in four cases of malarial cachexia along with the crescents. Their presence was not constant. Sometimes they were seen but once in a case in the course of ten or twelve observations, in other cases they were seen three or four times. Several times small hyaline masses about as large as one of the larger forms of micrococci were found attached to them.

Most of the cases were seen during a residence of two weeks in the institution, and some rather interesting results as to the action of drugs on these bodies were obtained. In order to study the cases as thoroughly as possible, most of those coming in with simple intermittent fever were placed under placebo treatment, good diet, and rest. Under this the chills in some cases diminished in frequency and severity, and in a few instances ceased entirely. Others grew worse, the chills antedating and gradually changing from a tertian to a quotidian type. In several cases the plasmodia disappeared from the blood and crescents appeared. In all the cases of intermittent fever a few large doses of quinine sufficed to stop the chills and cause the plasmodia to disappear from the corpuscles. The quinine was given in doses of ten grains t. d. for several days in succession, after which the patients were given smaller doses or placed on house tonic. Similar treatment in cases in which the crescents were present seemed to have absolutely no effect on them. They would be present in just as great numbers after thirty grains of quinine had been given daily for three days as before any quinine at all was given. Knowing the effect of Warburg's tincture on cases of chronic malaria, this was given in two cases in one-half ounce doses t. d. for several days in succession, but with no more effect on the bodies than the quinine had had. The patients improved, appetite and color became better, but the bodies remained, although, as said, their number in some cases was diminished.

I am able to say little as to the effect of medication on the ciliated bodies. In some cases they were not seen after quinine, but often they were seen but once in the course of many examinations, so that little can be learned from this. In one case they appeared after numerous doses of quinine had been administered. In one case Dr. Atkinson was kind enough to draw some blood from the spleen in an interval of the attack, in a case of intermittent. In the splenic blood the plasmodia were found in considerable numbers, but they were not present in the blood drawn from the finger on the same day. In every examination special attention was directed to pigmentation of the white corpuscles. Pigmented white corpuscles were found in comparatively few of the cases, and only in the severer forms. They were most numerous in the case of a negro, with comatose fever, and were found in abundance in the three other cases. In these the pigment was in the shape of large, round and irregular masses. It was not found in any of the recent cases of intermittent fever, and only occasionally in cases of remittent fever and malarial cachexia. In these cases it was mostly in the form of fine rods.

Changes were seen in the red corpuscles in numerous instances. The most common change was the appearance of vacuolation spoken of. This is important as liable to lead to error, and seems most probably what Richard has described as the first appearance of the parasite in the corpuscle. This he describes as a small, clear spot appearing in the corpuscle, somewhat as a weevil appears in a pea. In the cases where the anæmia was marked there was a diminution in the number of red corpuscles, and considerable variation in size and shape.

Some attention was directed to the blood plates. In our observations last spring it appeared in some cases that these were pigmented, but I was unable to confirm this in the cases examined this fall. Sometimes their numbers appeared to be increased, but this varied so much in specimens of healthy blood examined, that I could not reach any definite conclusion. The white corpuscles containing the pigment, and others which did not contain it, were in many cases enormously swollen. None of the white corpuscles contained the plasmodia, but in one or two instances the movable bodies seemed to be enclosed in them.

Numerous control experiments were made, the most convincing of which were unintentional. Cases of marked anæmia from various causes other than malaria were examined, cases of typhoid fever, and of fever from various causes: but all with negative results. In several instances individuals from a malarial region with almost every outward manifestation of malaria, slight jaundice, etc., were examined, supposing as a matter of course that they were malarial, and negative results obtained. One of these individuals not only had the outward ap-

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pearance, but so typical a remittent fever temperature curve that it required considerable resolution to stand by the microscopic diagnosis. The further course of the disease justified the confidence.

As the matter stands now so much is certain (1st) that in malarial fevers and cachexia there are certain bodies found in the blood, whose presence makes the diagnosis of the disease certain. 2d. The character of these bodies varies in different forms of the disease. Although they seem in rare cases to run into each other, still, in general, we can say that where the plasmodia inside the red blood-corpuscles are seen the patient has intermittent fever, and where the crescentic and elongated masses are found he has either some form of remittent fever or malarial cachexia. The ciliated bodies, though diagnostic of the disease, do not afford any indication of the character of the fever. What is the nature of these bodies? That they are organisms, whether vegetable or animal, we cannot doubt.

One thing that is hard to reconcile to the view of their viability is their protean shape. Nothing could look more unlike one of the small unpigmented amœboid bodies inside the red blood-corpuscles than the large crescent with its bunch of pigment in the centre, and the ciliated body is wonderfully unlike both.

It seems probable that the crescentic form of this organism is more tenacious of life, has a greater power of resistance than the other forms. And this form appears in just those cases of malaria where quinine proves most inefficacious. It is possible also that this form may represent the adult organism from which the other forms may be produced, and quinine, while not acting destructively on the adult form, may prove destructive to spores or younger forms evolved from this. It is also possible to assume that the good effect of quinine in this condition may make itself felt by raising the powers of resistance of the tissue cells, particularly the red blood-corpuscles, enabling them to resist successfully the attack of the organism.

The various steps in the evolution of the organism have not been made out. Lavaran says that the free-moving cilium is the true organism, and that it attacks the corpuscles, while Marchiafava and Celli claim that the active agent is the amœboid organism. It is possible that there may be an earlier form than either of these. Marchiafava and Celli have described small, isolated masses in the interior of red corpuscles which are not larger than micrococci, and stain brilliantly with methylene-blue. I have seen similar bodies in numerous cases of intermittent fever, sometimes in considerable numbers, at others very few. They were never found in other cases than intermittent. Often club-shaped processes of the plasmodium will be found connected with the central mass by very fine filaments, and these may be mistaken for the small, round masses. It is possible, when the corpuscle contains numbers of these, that the whole may be connected by slender threads which elude observation, or the plasmodium itself may break up into these small masses. That there is some connection between them and the plasmodium is shown by the fact that they are always present together. It is also possible that they may represent the earliest form of the organism, and the plasmodia may develop from them.

Nothing definite is known as to the actual connection of all these various forms of the organism with each other. Until it can be isolated from the body and grown in suitable media outside of it, there can be nothing but mere speculation concerning this connection. All attempts to cultivate it outside of the body have failed. The organism is not a bacterium, and most probably cannot be cultivated in the same manner that bacteria are cultivated. Its whole morphology declares it rather to belong to the protozoa, and with every means at their command zoölogists have never succeeded in cultivating these as bacteria are cultivated, and as common as the protozoa are, the complete life history of few or no examples of the group has been made out.

The importance of these recent discoveries in malaria can hardly be overestimated. Not only is a new territory opened to the pathologist, but to the clinician the sure means is given, by a simple examination of the blood, of diagnosticating accurately the most complex, and sometimes most terrible, of diseases, and in which more depends on a speedy and certain diagnosis than in any other disease. Not only is he enabled to diagnosticate the disease as such, but in most cases the particular form.

PRIAPISM: ITS CAUSES AND TREATMENT, INCLUDING THE HISTORY OF A REMARKABLE CASE.

BY J. L. DAWSON, JR., M.D.,
OF CHARLESTON, S. C.

PERSISTENT erection of the penis is a trouble so rarely met with that our literature on the subject is very meagre. The journals, from time to time, report cases, from which most of our information is collated, and from which we must deduce most of our conclusions.

There seem to be three classes of causes: first, those due to traumatism, producing inflammation and lymph extravasation; secondly, those directly due to diseases of the nervous system; and thirdly, those due to nervous excitations of a reflex character.

Cases of injury to the penis during the act of copulation, and subsequent persistent erection of the organ, are often met with, and as frequently reported. Cases dependent upon diseases of the nervous system are exemplified in the persistent erections attending locomotor ataxia. Disease and injuries of the cerebellum and spinal cord are known to produce erections of a severe nature. I have seen sudden erections occur at birth in cases of breech delivery, as the head engaged in the superior pelvic strait, due, possibly, to pressure upon the cerebellum by the movable cranial bones. Again, local irritants, such as foreign bodies in the rectum, irritation of the prostate, and adherent prepuce, produce erections through the reflex nervous centres.

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"Mr. Bryant[1] circumcised a boy, aged two years, who was suffering from an erection of the penis which his mother declared positively had existed from birth. He could pass his water freely, but the prepuce was long and adherent to the glans. When eleven months old he had tetanic fits, followed by wasting of his legs. The operation removed all symptoms." Some authors believe that effusion of blood into the corpora cavernosa may be caused by impeded return of the blood in persons suffering from leukæmia, in a way analogous to the hemorrhage from mucous membranes that occurs in that disease. "Dr. Salzer,[2] of Worms, narrates a case of priapism in a man aged forty-six, who awoke with his penis in a state of violent erection, which even the administration of chloroform did not allay. He considers this condition to be one of the symptoms, but a rare one, of leukæmia. The spleen was enlarged from attacks of ague."

On Sunday, August 28, 1886, I was called to see J. J., suffering from priapism. The patient was a healthy negro of about thirty-five years of age, a fisherman by occupation, and the father of several healthy children. He gave the following history: The previous week, from Monday night until Saturday morning, he had been shrimping, spending his nights in an open boat, and using a cast-net. On Saturday morning he reached the wharf at 5 o'clock, and, being very tired, he laid down in the open air and slept for an hour. He then went home and rested part of the day, but went out again in the evening. On retiring, at 11 P.M., he had connection with his wife. The act was not satisfactory. As he describes it, his emission was slight and rapid. He attributed this to exhaustion, and immediately went to sleep. He awoke at seven the next morning, with an erection more forcible than that caused by a distended bladder, to which he was accustomed. He got up and urinated without trouble, but his penis did not become flaccid. He returned to bed and again had connection with his wife. The act, he declares, was perfectly performed without uneasiness, but after ejaculation the organ remained in a state of erection, and began to pain him along the urethra in the perineum. He applied cold water and took a cold bath, but these having no effect, he wrapped the organ in crushed ice.

Still suffering, he summoned me to his aid, and when I saw him, at 12 M., the penis was firm, erect, and hot. The corpora cavernosa seemed to be the portions most involved in this turgescence, for the corpus spongiosum and glans were softer, and the prepuce could be readily drawn forward so as to cover the glans. I ordered hot fomentations to be applied, but they availed nothing. I again tried the ice bag, and ordered fifteen grains of potassium bromide every hour. This was continued during the day, but at my evening visit I found the organ in the same condition, the pain unabated. He slept at short intervals during the night, but was frequently awakened by pain, which was of a sharp, paroxysmal character, intensified by entanglement of the erect organ in the bedclothes. The day following he was put upon fifteen grains of chloral hydrate and thirty of potassium bromide every hour until six doses were taken. This giving no relief, in the afternoon I injected half a drachm of a four per cent. solution of muriate of cocaine into the urethra. After waiting a reasonable time, electricity was tried. The interrupted current was used, one pole being applied to the lumbar region, the other to the perineum. The poles were shifted from time to time, and the current sent directly through the organ, but it produced no relaxation whatsoever. I wished to try the continuous current, but could not obtain a battery at the time. A brisk cathartic was administered, and the following suppositories introduced into the urethra during the night: extract belladonnæ, grs. iij, extract opii grs. iij, ol. theobrom. q. s.; ft. in suppos. no. iii. The following morning the patient was suffering greatly, and had slept little. A half grain of sulphate of morphia was given hypodermatically, which had the effect of producing profound narcosis, but the organ persistently refused to become flaccid.

In the evening of this, the third day, as the man was still suffering, I determined to open the corpora cavernosa, and evacuate the blood, fearing that gangrene might ensue. With the assistance of Dr. P. G. de Saussure and Dr. J. J. Edwards, chloroform was administered and pushed to its utmost limit. The cavernous body of the right side was incised at the pubes, and a quantity of dark grumous blood evacuated. Although we extracted as much as we thought advisable, it had very little effect on the erect organ.

Having failed in every expedient, we determined to continue the bromides and watch the case. During the priapism there was no difficulty in the passage of the urine, the patient emptying his bladder easily. The erection continued for ten days, and nothing further was done beyond the application of tobacco poultices and the administration of stimulating enemata, which seemed to have little effect. The turgescence began to subside on the tenth day, and in four or five days the penis had gradually returned to its normal flaccidity.

Nearly two months have elapsed: the patient enjoys his usual degree of health, and has returned to his work, but he is unable to have an erection. He has attempted the act of copulation several times, but the penis remains flaccid, although he asserts that he has an orgasm with ejaculation.

Leukæmia may have been the cause in this case, as I had attended the patient with malarial fever some months previously; he was necessarily exposed to malarial miasm, spending his nights among the marshes along the coast. I had never examined his spleen physically, and did not take this disease into consideration during my attendance on the case.

Our treatment in these cases must be guided by the cause. Where the priapism supervenes upon injury, and is due to inflammatory deposits, antiphlogistics are, of course, indicated. When supervening upon nervous troubles directly, or by reflex stimulation, we must use sedatives, and the bromides are supposed to meet this indication most promptly. Opium and its alkaloids are also of great value.

[1] International Encyclopædia of Surgery, vol. vi. p. 660.
[2] Op. cit., vol. vi. p. 661.

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Locally, hot fomentations, ice, anodyne applications, anodyne enemata and suppositories have all been more or less beneficial. The overloaded cavernous bodies may be opened and the blood evacuated when everything else has failed; but this should be a last resort, as the injury to the part is intensified, and inflammation, however slight, will only bring an increased supply of blood to the organ. If we believe the priapism to be a symptom of leukæmia, then large doses of quinine in combination with iron should be of benefit.

The disease seems to run its course occasionally in spite of everything we can do. Its tendency is to recovery, but it may threaten mortification. Hunter says he once saw a case of this kind in a dog, in which the erection refused to subside, and the penis mortified and dropped off. There is one case on record of injury to the penis during sexual intercourse, in which death ensued two weeks after the commencement of the priapism, but to what the immediate cause of death was attributed is not stated.

REPORT OF CASES ILLUSTRATING THE GREAT CONTAGIOUSNESS OF SCARLET FEVER.

BY BOARDMAN REED, M.D.,

OF ATLANTIC CITY, N. J., FORMERLY PHYSICIAN TO THE MERCER MEMORIAL HOUSE FOR INVALID WOMEN.

THE science of medicine is not yet completed, and it is the bounden duty of every physician to report cases which may assist in the determination of mooted questions. The paper read by Dr. Arthur V. Meigs, on "The Contagiousness of Scarlet Fever," at a recent meeting of the Philadelphia County Medical Society, raised a question of the utmost practical importance. It was an able and elaborate presentation of views which have long been held by some experienced physicians—views which from time to time have been set forth with more or less cogency in medical literature.

Dr. Meigs contends that scarlet fever is by no means so contagious "as is commonly reported, and very much less so than measles and whooping-cough, and some of the other common contagious maladies." The ten cases cited by him certainly show that the contagium of scarlet fever is less volatile than that of measles and whooping-cough, and less likely to pervade an entire house. In one of his cases, moreover, there was an exposure of two children to the disease for some hours after the rash appeared, without its being taken. I have seen similar cases where one child in a family having been taken with scarlet fever, the other children, who had been with the sick one till shortly after the rash appeared, were isolated and kept in another part of the house till a month or more after convalescence was established, and then allowed to associate again with the convalescent without contracting the disease. In these cases, however, the greatest pains were taken to destroy or thoroughly disinfect every article of every description which had been in the sick-room. The convalescent children were bathed, their heads shampooed, and they themselves taken daily out into the air for a week before being permitted to mingle again with the other children. Without these extraordinary precautions my experience teaches that even a month's separation is no guarantee against the contagion.

Most of the authorities on the diseases of children refer particularly to the lack of volatility of the scarlet fever poison. It is an established fact that it is usually necessary to be quite near a case of the disease in order to contract it. It is getting to be pretty well settled, also, that scarlet fever is less contagious previous to the coming out of the rash than afterward. Probably the same is true of most of the eruptive fevers.

Granting all this, and granting, also, that adults rarely take scarlet fever, while the older children of a family sometimes—though certainly very exceptionally—escape after complete exposure during the height or decline of an attack, I must still insist on considering this one of the most contagious, as well as the most treacherous and dangerous of the exanthemata. What its contagious principle lacks in volatility it makes up in persistency and indestructibility. It has been known to remain for years in articles of clothing without losing its virulence. Even the comparative insusceptibility of the middle period of life is not a sure protection against it, provided the exposure is frequent or long continued.

The following case strikingly illustrates the certain contagiousness of scarlet fever when neither isolation nor other preventive measures are practised.

CASE I.—In the summer of 1879, a few cases of scarlatina occurred in one of the public schools of Atlantic City. In a poor family, consisting of father, mother, and six children, the oldest, a girl of ten years, contracted the disease. She was put to bed in the upper room of a two-roomed dwelling in which the entire family slept. One after another, at intervals of two to five days, all the children were attacked. Finally the mother, who had nursed them night and day, contracted the fever. The father, who had previously been out at work during the day, though sleeping in the one bedroom with the sick ones at night, escaped till the last; but having then to take the mother's place as nurse, and hold one or other of the sick children on his lap, he could not longer resist the concentrated contagion at such close quarters, and himself came down with the disease. None of the cases was malignant, and all recovered.

The following is one of several cases closely resembling each other, which have occurred in my practice.

CASE II.—One of a family of two children had scarlet fever in Philadelphia. The other child was kept away until an entire month after convalescence was established. Then both children were brought to a boarding-house in Atlantic City, and allowed to occupy the same room. Within a few days the other child was attacked, when, as is the custom here, the entire party was obliged to remove at once to a private cottage. The greatest care was used in disinfection, and the disease did not spread any further.

Owing to the regulation enforced by all hotel proprietors at this resort, that guests who develop any contagious disease must be immediately removed, I have never, except in the following instances, known

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any such diseases to be contracted from other cases in a hotel here. Whooping cough cases are sometimes permitted to remain in the smaller boarding-houses, but never in the hotels or more important hostelries. It is significant as to the contagiousness of scarlet fever that these only exceptions (described below) were of that disease.

CASE III.—A child brought from a neighboring city to a hotel here developed a severe and typical attack of scarlet fever on the night of its arrival. I saw it the next morning, and advised that it be immediately quarantined in a cottage. Instead, the family took it home, where it died the next day. The room occupied by it was disinfected, but perhaps not with sufficient thoroughness. Some two weeks later a child arrived from another city, and by accident was assigned to the same room. Within twenty-four hours it was seized with high fever, rapid pulse, vomiting, and acute inflammation of the fauces. No rash had yet appeared when my visit was made; but, anticipating scarlet fever, I again advised removal to a cottage. The parents, against my protest, returned home with the child. A diagnosis of diphtheria was there made, and death resulted in two or three days. There had been no diphtheria in the house, and, considering the circumstances, it seems to me at least probable that this was a case of scarlatina without rash. The room was now thoroughly disinfected, and no other children were permitted to occupy it for several months. About the same time a family with two children were occupying a room on the same floor, and nearly opposite the one just referred to. Within a week after the last case mentioned, one of these children was attacked with scarlet fever, and the family then promptly removed to a cottage. The child did well, recovering in due time. The other child occupied a different room after the transfer, but by the end of a week was taken with slight fever, and sore throat, evidently scarlatinous, but had no rash. There had been no other cases in the hotel, and, though this was several years ago, there have not been, to my knowledge, any cases in it since, either of diphtheria or of scarlet fever.

In view of the above facts, I submit that physicians cannot be too careful in guarding against the spread of scarlet fever. On account of its frequently malignant and deadly character, as well as the serious complications and sequelæ which so often afflict children that do not die of it outright, it is certainly to be dreaded more than any other disease of childhood. Therefore, admitting that it is somewhat less contagious upon slight exposure, or at a distance, than some other diseases, let us nevertheless inculcate greater rather than less stringency in quarantining against it.

A CASE OF POST-PUERPERAL HYPERPYREXIA, WITH A TEMPERATURE OF 109.4°; TREATED BY COOL SALT-WATER BATHS; RECOVERY.

BY W. W. SKINNER, M.D.,
OF BERLIN.

EVER since the introduction of the clinical use of the thermometer, the question of the extreme limit of bodily temperature compatible with life has attracted attention. Liebermeister has made many researches upon the lower animals, mammifers and birds, and it appears that these animals infallibly die when their temperature has reached a point 10° or 12° F. higher than their normal. He remarks, in accordance with Bærensprung, that the maximum of bodily heat observed in human beings who have recovered is 108.5° F., and believes that the absence of a higher temperature demonstrates the impossibility of the preservation of life beyond that term. Another investigator, Weikart, declares that at 109° F., blood decomposes and coagulates. Wunderlich also believed that a temperature exceeding 108° F., necessarily caused death. Nevertheless, it seems that there are rare exceptions, under certain conditions, to this general rule. For instance, Hirtz[1] affirms that in the clinique at Strasburg a temperature of 111.2° F. was observed at the culminating point of an access of simple tertiary fever of a benign character. But he does not definitely state by direct assertion that the patient ultimately recovered.

It has recently fallen to my lot to observe a case of extreme hyperpyrexia which developed under special conditions. The following are the principal facts relating to it, which were gathered with the utmost care and exactness.

Mrs. H., passenger on the steamship "Marseille," sailing from Antwerp to New Orleans, gave birth, on August 24th, to her first child, which was well developed and born at the termination of the normal term of gestation. The confinement was natural, but the posterior wall of the vagina was slightly torn in its lower portion during the passage of the cephalic extremity of the fœtus. The delivery was slow, lasting more than an hour, and it is probable that a small portion of the aminos was left in the uterine cavity after the placenta was extracted. There was very little hemorrhage, but during the succeeding days a fetid sanious discharge escaped from the vulva in considerable quantity. During the first four days after the *accouchement* there was complete absence of fever, and of every subjective morbid symptom. The parturient occupied a bed in the hospital of the ship, where the sanitary conditions were deplorable. No ventilation worthy of the name, an insupportable, stifling heat, and cleanness and especially asepsis more than problematic; such were some of the conditions in which the *accouchée* was placed.

Until the 28th of August, the temperature of the parturient had not exceeded the normal. Even on the morning of that day it was still 100°, but at evening it had risen to 102.2°. This was the fourth day after confinement. The general condition of the patient was satisfactory. Owing to abundant perspiration, the entire surface of her body and limbs was covered with abundant sudamina.

August 29.—Fifth day; morning temperature taken in the rectum, 104°. The vaginal discharge still abundant and fetid, notwithstanding injections of carbolized water into the uterine cavity twice daily. At 4 P.M. I found her with the extraordinary rectal

[1] Dictionaire de méd. et de Chir. pratiques: Art. Chaleur.

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temperature of 109.4° F. Surprised by such a high point and desirous of removing all doubt of its precision, I took the temperature a second time with the same result; I also took the axillary temperature, which was 109.2°. In view of the urgent necessity of reducing the central temperature of the patient without delay, I at once instituted the antipyretic treatment *par excellence*, the employment of cool or cold water. At first, lotions with sea water at 82° F. were administered over the entire surface of the body during an hour. This brought the rectal temperature to 107.6°. Then the patient was placed in a bath of sea water also at 82°, and remained there during another hour. After the first half hour the rectal temperature fell to 102.2°, and at the termination of the bath it was at 100.4°. The pulse, before the bath, was 154, afterward 120. A cathartic (an ounce of magnesia sulph.) had been administered as soon as her high temperature was discovered, and after the bath she was given a few grains of sulph. quinine. This was all the treatment employed to combat the fever, except that she was not returned to the hospital, where the heat was very great, but was placed in a stateroom on deck.

During the whole of the fever, the patient preserved the entire use of her mental faculties and a large proportion of her strength. No morbid phenomena, general or local, presented themselves, other than those already mentioned.

30th.—Great improvement in the patient. Continuation of the sulph. of quinine in doses of ten grains twice daily. Rectal temperature: A.M. 101.3°, P.M. 102.2°. Late in the afternoon, another bath with sea water at 84° caused the rectal temperature to fall to 100.4°.

During the following days the fever gradually diminished up to the arrival of the steamer at New Orleans, when the patient was transferred to Charity Hospital. She remained there nearly three weeks without presenting any new symptoms, and left the hospital September 23d after complete recovery.

It is interesting to observe that upon the same day that the patient showed her maximum temperature, the heat of the atmosphere in the hospital where she was lying was very great, being, by careful observation, *not less than* 91.4°. This was the degree of heat in that part of the ship during several successive days at this period, and I am inclined to think that this excessive heat of the *milien ambiant* had much to do with the intensity of the fever in the case in point. This would explain, to a certain extent, the ease with which the patient's temperature was lowered, and the improvement which immediately succeeded her removal to another room where the heat was less.

One might object to the report of this case by remarking that the thermometer employed in this instance might not be exact; in other terms, that there might have been an instrumental or thermometrical error. I would respond to this objection by the statement that the thermometer employed in this case is the same that I used for three years in the Paris hospitals, but in order to remove all doubt as to its present precision, I had it tested, after the voyage, in the laboratory of General Pathology of the Faculty of Medicine of Paris, and it was found to be exact.

The ultimate recovery of fever cases having had a central temperature of 109.4° is extremely rare. It is on this account that this observation is worthy of publication.

RECOVERY FROM AN OVERDOSE OF MERCURIC CHLORIDE.

BY S. T. ARMSTRONG, M.D.,
PASSED ASSISTANT SURGEON U. S. MARINE HOSPITAL SERVICE.

THE following case seems worthy of record as an instance of recovery consequent upon an extremely large dose of mercuric chloride:

John McDonald, aged thirty-five years, was employed temporarily as a hospital orderly, though by occupation a sailor, and endowed with the virtues and vices common to men of that pursuit. Principal among the latter characteristics was an overpowering affection for alcohol—in any form. Once, while in the navy, he drank a tin-cup full of an alcoholic solution of shellac, and without any subsequent physical penalty, save great temporary discomfort.

On November 1, 1886, during the temporary absence of the physician and steward, the subject of this history, for some time deprived of any opportunity for alcoholic indulgence, and having no wherewithal to obtain liquor, entered the hospital pharmacy, and finding the dispensary bottle of alcohol, containing spirits 95 per cent. proof, took a drink of about thirty cubic centimetres of the liquor.

The result was so satisfactory to him that, in a short time, he repeated the potion. On attempting a third potation, he took from the drug shelf a bottle, of similar size and adjoining the alcohol bottle, containing a solution of mercuric chloride, 100 grammes in 500 grammes of alcohol, used for quickly preparing ward solutions of bichloride of mercury. He poured out, he judged, the same quantity of the liquor as before—a quantity that contained six grammes (ninety grains) of mercuric chloride—and drank it at a gulp. As soon as it passed his throat, he knew from the burning sensation, that he had taken something wrong.

Almost instantly violent cramping and vomiting occurred, soon augmented by free purging and micturition. The hospital steward returning within an hour after the poison was swallowed, found the man coiled up on the grass, and learning from him that he had taken something from the medicine case, gave him, on general principles, a dose of sweet oil. I saw the man shortly afterward. His face was pale, eyes sunken, expression anxious, voice stridulous—he spoke with difficulty; heart's action feeble and rapid, skin cold. Insatiable thirst, and continued vomiting of the few drops of water he momentarily swallowed. Tormina and tenesmus, with occasional evacautions of a small quantity of intestinal mucus. Copious micturition.

To counteract the collapse a hypodermatic injection of atropia sulphate 0.002 gramme was given, and the patient put to bed.

An inspection of the pharmacy was made, and a graduate found containing a white deposit on its

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side; an examination soon showed this to be mercuric chloride, and a glance at the medicine shelf explained the source of his potations. In consideration of the potency of the poison, and the condition of the patient, the case was prejudged hopeless. Reaction, however, followed the hypodermatic, he became stronger during the night, and though very weak the next morning, gave promise of recovery. The subsequent history of the case is unimportant; intense salivation occurred, which was treated as usual, and the case discharged, recovered, on November 11th.

It is considered that the alcohol (60 c. c.) first drank had dehydrated the mucous membrane of the œsophagus and stomach, rendering absorption slow, and the excessive dose of the bichloride proved so irritating that he vomited most of it.

MEDICAL PROGRESS.

THALLIN IN TYPHOID FEVER.—The introduction of such drugs as "kairin," "antipyrin," and "antifebrin" has somewhat diverted attention from a very powerful antipyretic agent, viz., thallin. PROF. EHRLICH lately presented to the Clinical Society of Berlin the results of some researches he has been making with this last-named agent, especially in the treatment of typhoid fever (*Münch Med. Woch.*, No. 47). From experiment, he had found that after administering the drug to animals it was not retained in the nerve centres, but mostly in the fatty tissue of the body. He also found that there was a marked difference in toxic action, according as to whether it was administered by the mouth or subcutaneously, the greater inertness of its effect in the former case being attributable to the hindrance to absorption from the presence of intestinal contents. The lesions induced by a toxic dose comprised fatty degeneration of the kidneys, necrosis of the salivary glands and pancreas, and hemorrhagic infarcts in the renal pyramids. The chief action of thallin is antipyretic, but it is capable, also, of moderating inflammation. As regards typhoid fever, it was administered by Ehrlich in two different ways. The first plan consisted in commencing with doses of 0.06 gramme every hour, and reducing the dose to the minimum required to give any effect. The other plan was to commence with a minimum dose, and increase it until an effect was produced, and then to continue the prescription at the dose thus attained. The action of thallin is especially noticeable in its effects on the sensorium and general condition of the patient, who presents the appearance of convalescence, whilst the splenic swelling and roseola are still present; and if the drug be discontinued the temperature will rise again. It is not therefore surprising to learn that, whereas of twenty-eight cases treated by bathing, the average stay in hospital was thirty-seven days; of seven cases treated by thallin (minimum doses), the duration of treatment was forty-seven days; and cases on a scale of progressive doses, thirty-eight days. However, Professor Ehrlich claims advantages for the drug in the absolute control it exerts over the pyrexia, and the sense of well-being enjoyed by the patient. There were no intestinal hemorrhages in these cases, and no instance of perforation. The kidneys were not affected, but sequelæ in the form of hyperamia and œdematous swellings seemed due to the use of the drug. It was not thought that thallin had any specific action against the typhoid bacillus, but it did seem to limit the degree of intestinal ulceration. Professor Ehrlich considers it to be on a level with the bath treatment. DR. FRANKEL pointed out that if the statement were correct that thallin is not found in the nerve centres, its action in reducing temperature was rather inexplicable. He had exhibited it in increasing doses, but could not say that the patients experienced any special benefit attributable to the diminished fever. DR. GUTTMAN had not been favorably impressed by its use, and had noted the production of rigors.—*Lancet*, December 25, 1886.

SURGICAL TREATMENT OF PERITONITIS.—TRUC, of Paris, in the *Revue de Chirurgie*, No. 11, 1886, states the indications for surgical interference in peritonitis to be as follows:

The presence of grave general or functional disease dependent directly upon peritoneal inflammation, and seriously threatening the life of the patient.

Encysted peritonitis demands the evacuation of the contents of the cyst and its thorough disinfection.

In diffuse forms, if the cause be known, treatment should be directed against it; if it be not known, a thorough exploratory laparotomy should be made, and the case treated in accordance with the indications found.

Collapse and hyperpyrexia are contraindications to operation.

A BEVERAGE USED IN BRIGHT'S DISEASE.—PROFESSOR SEMMOLA, of Naples, has recommended the following to be taken as a beverage:

Sodii iodid.	gr. xv.
Sodii phosphat.	gr. xxx.
Sodii chlorid.	ʒjss.
Aquæ potabilis	Oj.

This may be drunk mixed with milk, if the taste is objectionable.—*Bulletin Générale de Thérapeutique*, November 30, 1886.

STUDIES IN THE ELIMINATION OF POISONS.—SANQUIRICO, of Siena, has investigated the elimination of poison by the kidneys, and the means of increasing such elimination. His studies were based upon the well-known facts that the organism often rids itself of injurious substances by the kidneys, and that the vascular system has the power, without undergoing extensive alterations, of permitting the exosmosis of fluids which had been injected into the body to the extent of eight per cent. of the body-weight.

The introduction of neutral fluids increases the tension of bloodvessels, and this tension is relieved by the organs of elimination.

Taking advantage of these laws of the economy the investigator experimented with chloral and aconitine in the following manner: A minimum fatal dose was given to an animal, and on the appearance of the first symptoms of impending death a three-quarter per cent. solution of chloride of sodium was injected in the subcutaneous tissues of the neck in amount eight per cent. of the weight of the animal; in the case of poisons the

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action of which is immediate, the injection was made as soon as the poison had been taken.

With alcohol, strychnia, and chloral profuse secretion of urine occurred, and the animal recovered; in poisoning with aconitine the quantity of urine was often small, and the animals perished before elimination could be established; when the urinary secretion gradually increased the animal was often saved. The poisons used were found in the urine of animals which recovered.

Curarine, morphine, and hypnone were given, and ten per cent. of the body-weight in neutral solution was used with entirely negative result; the secretion of urine was never established after the administration of the poison.—*Centralblatt für die medicinischen Wissenschaften*, December 18, 1886.

EXPERIMENTS IN TRAP SIPHONAGE AT THE NAVY MUSEUM.—Repeated experiments on trap siphonage have shown beyond question that the ventilation of soil-pipes and traps is a safeguard against the entrance of sewer gas into dwellings except in unusual contingencies, provided the general plan of the drainage and sewerage is correct, and the workmanship good. The experiments at the Navy Museum in Washington have confirmed the results of those reported to the National Board of Health by Philbrick and Bowditch, and are stated in the following terms:

1. The seals of ventilated traps are safe against siphonage and back pressure.
2. The seals of unventilated traps are never safe from siphon action or back pressure, except in deduction four.
3. The vertical vent should be three inches, with a four-inch soil-pipe.
4. Traps connected on a horizontal pipe and fixtures discharging on the same level into horizontal pipe, apparently have no effect on unventilated traps.
5. All varieties of non-mechanical traps are more easily affected by back pressure than by siphonage.
6. The ball-traps were not affected by back pressure, but by siphonage.
7. The Sanitas trap withstood siphon action better than any of the patent traps, but was easily affected by back pressure.
8. The sewer air is more liable to enter unawares by back pressure through the seal of the trap, because the seal remains unbroken.
9. Difference in friction of iron and lead pipes made no apparent difference in the effect on the traps.

We are left in the dark, however, as to the precise nature of the unusual contingencies under which it is admitted that ventilated traps may be siphoned out and the emanations from the sewers enter houses; and Putnam and Waring think that they have shown that the so-called unusual conditions may occur where not in the least suspected, although a patent trap and water-closet intended to meet these "unusual contingencies" might perhaps serve as a bias against entirely unprejudiced judgments in the case.

It is true, however, that the approved methods of plumbing are now so costly as to make them practically unattainable to many householders, and that, outside of a very simple system of plumbing for moderate-sized houses, it is difficult to know with certainty what is safe and what not. The Museum of Hygiene, under the Navy Department, has an excellent opportunity to show just what the conditions are by which water-closets and soil-pipes inside a house may be made free from danger, and, it is to be hoped, that this will be done, no matter what the cost of time or money. If plumbing can be simplified and cheapened at the same time, the benefit to society will be incalculable.

URINE.—The following is a summary of the investigations made in the study of the urine during the past year, as given by the *British Medical Journal* of December 25, 1886. The acid reaction of urine is due to the excess of acid over normal phosphates. The ratio of the phosphoric anhydride combined as normal phosphate to that as acid phosphate is the following: evening urine, 91 : 100; night urine, 56 : 100; morning urine, 58 : 100; or for the urine of the twenty-four hours, as 69 : 100.

Hypobromite solutions do not keep well, and accordingly Lunge has recommended the use of A. Frank's bromum solidificatum. The solution is thus prepared: 400 grammes of caustic soda are dissolved in a litre of water and kept in a stoppered bottle. To 100 cubic centimetres of this solution about 100 grammes of bromine, that is to say, 10 centimetres of the stick of the brom. solid., are added. When the stick is decolorized the solution can be employed.

On the relationship of the formation of urea and uric acid to the secretion of bile some interesting papers by Noel Paton will be found in this year's *Journal*, to which we must direct the reader. Suffice it here to say that the author establishes a direct relationship between the urea formation and the biliary secretion.

Albuminuria.—The temperature, according to Loewy, exercises a marked influence on the composition of filtered liquids. The quantity of the filtrate increases with the elevation of temperature. He agrees with Senator in regarding the albuminuria occurring in certain febrile conditions as due to the elevation of temperature.

The effect of compression of the thorax has been studied by Schreiber, according to whom a slight temporary albuminuria is the result, its degree being increased with the duration of the compression. Serum albumin and globulin were the albumins met with. Schreiber concludes that dyspnœa was not the cause of the albuminuria, but that the factors are: the diminution of the difference of pressure normally existing between the alveolar capillaries of the lung and the left ventricle; the diminished calibre of the pulmonary vessels, and the diminished extent of the respiratory excursions. A stasis in the pulmonary circulation is thus produced which is rapidly propagated to the renal capillaries, with consequent filtration of albumen. In young subjects (eleven to fifteen years) a thoracic compression lasting half a minute has sufficed to cause the appearance of albuminuria, of which there were no traces an hour subsequently.

Biliary Urine.—Oliver has proposed the following delicate test for the biliary acids. The solution is prepared thus: peptone in powder, 1.8 grammes; salicylic acid, 0.24 gramme; acetic acid, 60 drops; distilled water, 240 cubic centimetres. One part of urine containing biliary salts in a pathological proportion when

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added to three parts of this reagent causes the appearance of an opalescence, which disappears on the addition of one or two drops of acetic acid, but not on boiling. The urine should be transparent; if it contains urates in excess it should be warmed; if muddy from phosphates it is to be slightly acidified with citric acid, or filtered; if blood or albumen is present it is to be boiled and then filtered; and it is further advisable to reduce the density of the urine to 1.008.

Sugar.—Two delicate tests have been proposed. A solution of hydrochloride of phenylhydrazine, containing sodic acetate, gives a yellow crystalline precipitate. By this test sugar is never found in normal urine. If much albumen is present it should first be separated. A still more delicate test is the following, by means of which sugar can always be detected, even in normal urine. A small quantity of the saccharine solution is mixed with two drops of an alcoholic solution of naphthol or thymol, and an excess of strong sulphuric acid added; a deep coloration is produced, violet with the former and red with the latter. The test is of especial value for microchemical examinations.

Pigments.—The physician's attention should be directed solely to two urinary pigments, urobilin and indican, as the existence of other pigments is doubtful, and their significance equivocal. Cervesata has published some interesting conclusions as to urinary indican, of which we shall briefly summarize the chief. Normal urine contains uro-indican, whose artificial or spontaneous decomposition gives rise to indigo. To detect the indigo blue, it suffices in most cases to employ sulphuric acid and chloroform; but it is always useful to treat the urine previously with basic acetate of lead, particularly when it is scanty, dense, and high-colored. The sulphuric acid is preferable to the hydrochloric, because the reaction occurs more readily and more markedly, and is less liable to error. Vierordt's spectrometric method is recommended for its determination. In individuals in good health the indigo is found in very small amount, increasing, however, under a meat diet, but to a greater extent if aromatic compounds are administered; fasting, on the other hand, causes its diminution. Its elimination is greatly increased in diseases in which inanition and marked tissue-waste are prominent factors; also in diseases of the abdominal organs, particularly of the intestine; in many nervous affections, in splenic anæmia, renal cirrhosis, diabetes, and chronic lead poisoning. On the other hand, its elimination is very slight in fevers, parenchymatous nephritis, chlorosis, scrofula, advanced phthisis, catarrhal jaundice, hepatic cirrhosis, and ovarian tumors. The variations in its elimination are probably to be attributed to nervous modifications of the pancreatic secretion.

Aromatic Constituents.—Baumann has tried to determine the relationship between the putrid fermentations occurring in the intestine, and the formation of the sulphovinic and oxy-acids. From experiments on a patient with intestinal fistula he was led to conclude that when the putrefaction diminished in the intestine, as after the administration of calomel, the sulphovinic acids diminished equally in the urine.

A concentrated solution of picric acid produces a slight crystalline sediment in normal urine after an hour or two. Jaffe finds this to be partly uric acid and partly a double salt of kreatinin picrate with potassic picrate. It forms, indeed, a delicate test for kreatinin, giving a deep-red color with dilute solutions in the cold.

Alkaloids.—To detect these the reagent employed is thus prepared: iodine, 8; potassic iodide, 10; water, 10. Cool the urine to 0° C., after adding a few drops of the reagent: then concentrate a bright light by means of a lens on the urine in a test tube placed against a dark background. The green fluorescence is readily seen. It can thus be shown that the proportion of alkaloids in the urine passed during the eight hours after waking is five times as great as in the urine of the rest of the day.

Toxicity.—Bouchard has continued his researches as to the toxicity of normal urine. Man, even in a normal condition, is constantly destroying and excreting poisons either introduced into or formed in the organism, and the urine is one of the chief sources of elimination.

After an intravenous injection of normal urine, there is contraction of the pupils followed by quickened shallow respirarions and muscular weakness. The urinary secretion augments and the temperature falls. Death happens generally without convulsions, the animal dying most frequently in a state of coma. The quantity of normal urine necessary to destroy the life of a kilo of living tissue is very variable, oscillating between 10 cubic centimetres and 122 cubic centimetres per kilo, but 45 cubic centimetres may be taken as the mean in an adult. A man requires about two and one-sixth days to fabricate the quantity of urinary poison capable of poisoning himself, a coefficient, it may be said, which varies little in health, but greatly in disease.

The urine secreted during sleep is less toxic than that of the waking period. The character of the poison eliminated in the two periods also differs greatly, that of the waking period being narcotic in its properties, and that of sleep being convulsive. During the former, therefore, the body produces a substance which, accumulated, will induce sleep; during sleep, on the other hand, it elaborates a convulsive principle, which, when it accumulates, would tend to produce muscular irritation and provoke wakefulness. The variations in the toxicity depend especially on the greater or less intensity of the oxidations; with increased muscular activity, for example, during which more oxygen is consumed, the toxicity is lessened.

Feltz has experimented with febrile urine, and he finds that it is much more toxic in its properties; and, further, that there is no proportional relation between the density of the urine and its toxicity, as is the case with normal urine. There must, therefore, be other toxic agents in febrile, than are to be found in normal urine.

According to Lépine and Aubert, the special toxicity of febrile urine seems to be due to its organic rather than its saline constituents, as has been affirmed by some authorities; and, contrary to Bouchard and Pouchet, Villiers finds that normal urine never contains alkaloids, although these were present when the patient was suffering from febrile or inflammatory affections. Rovighi, again, like Feltz and Ritter, concludes from his experiments that uræmia is essentially determined by the salts of potassium, and that the uræmic convulsions are caused by an accumulation in the blood of inorganic salts, and more especially of those of potash.

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FORMS OF ALBUMINURIA NOT DANGEROUS TO LIFE.

IN this age of refinement in diagnosis we are apt to place too much stress on some special symptom to the neglect of the general features of a case. Thus, in the hands of many physicians the stethoscope has led to error when the presence of a murmur has been regarded as proof of the existence of heart disease. So also albumen in the urine has for years been considered by the profession and the public as an occurrence of the gravest moment, indicating serious, if not irreparable, disease of the kidneys. In *The American Journal of the Medical Sciences* for January, 1887, GRAINGER STEWART has a very timely article "On Some Forms of Albuminuria not Dangerous to Life," from which we may derive several important lessons. He does not consider accidental albuminuria, due to admixture of the urine with blood or pus, nor the febrile form, nor that due to passive congestion. Four categories are defined, the cases in which, though varying greatly, may with advantage be distinguished from each other, viz., paroxysmal albuminuria; dietetic albuminuria; albuminuria from muscular exertion, and simple persistent albuminuria.

Paroxysmal or intermittent albuminuria is characterized by the sudden occurrence of albumen in the urine, often in large amount, with numerous tube casts, the process lasting a variable time, perhaps only a few days and occurring at intervals without any appreciable cause. This form is most commonly met with in young adults who are the subjects of some constitutional taint, and the attacks are apt to be brought on by cold or exposure, and by errors in diet. It has close relationships to intermittent hæmoglobinuria, as very clearly pointed out by Ralfe in the *British Medical Journal* of November 27, 1886. In fact, the attacks may alternate, and this writer brings forward evidence to show that "functional albuminuria is only a minor manifestation of hæmoglobinuria and that the two conditions may merge one into the other." Both conditions are induced by increased destruction of blood-corpuscles—hæmolysis—probably in the liver. The explanations offered of the process are purely hypothetical, but it is satisfactory to learn that the attacks do not prove permanently injurious. Stewart recommends chloride of ammonium as a suitable remedy, while Ralfe relies chiefly upon arsenic, which seems to have the power of lessening the hæmolytic action of the liver and at the same time strengthening the resisting powers of the corpuscles.

Of dietetic albuminuria, which is more common, the writer gives several very instructive examples and recognizes three factors as possible existing causes: First, the use of certain kinds of food; second, the entrance of food (of any kind) into the stomach; third, one or both of these in association with other influences, such as exercise or the time of day. A most curious fact is the appearance of albumen immediately after taking food into the stomach, the nature of the diet having little or no influence. In such instances the time which elapses between the ingestion of the food and the appearance of the albumen is so short that we must suspect a reflex vascular influence. In other cases the increase in the saline constituents of the blood after a meal may increase the diffusibility of the albumens and permit of their filtration in small amounts through the capillaries of the glomeruli.

Albuminuria following muscular exertion has long been recognized, and of late years several important memoirs have been written on the subject. Stewart reports two cases very fully in which a careful study excluded all causal conditions save exercise. The mere fact of rising seems to have an influence in inducing the albuminuria, for in his first case neither exercise in bed nor massage caused any change in the urine, while the change from the recumbent to the erect posture was invariably followed by the onset of albumen. In the state of our present knowledge we cannot give a satisfactory explanation of these cases, but it is very important to recognize their existence. In treating such cases rest and a careful diet will usually suffice to remove the condition, which is usually transitory. The use of ergot and belladonna is suggested.

Cases of the fourth category, simple persistent albuminuria, are more rare and the condition is much more difficult to separate from one of positive renal disease. The principal features of these cases are the continued presence of albumen, without tube casts, and without cardio-vascular changes,

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or signs pointing to subacute nephritis. The health may not be seriously impaired for years, but the prognosis in these cases is more serious as the condition may culminate in organic disease. In distinguishing between the functional and organic cases Stewart lays stress upon the quantity of urea, the presence or absence of tube casts, and the state of the cardio-vascular system. In the fourth category, he says: "So long as the solids are in normal quantity and the vascular changes do not manifest themselves, we may speak hopefully even in such cases."

This writer gives a more favorable opinion of these cases than has hitherto been expressed, but we feel certain that it will be justified by future experience. A very large amount of mental worry and suffering is annually caused by the widespread belief that the presence of albumen in the urine is an indication of the gravest character, and by too many, both lay and medical, the condition is regarded as identical with Bright's disease. Prof. Stewart's article will do incalculable good in helping physicians to discriminate between the non-dangerous and the serious forms of albuminuria.

THE TREATMENT OF VARICOSE VEINS.

IN THE MEDICAL NEWS for September 11, 1886, we directed attention to the operation of excision in the treatment of varicose veins. The favorable opinion of this operation was supported by a letter from DR. S. J. RADCLIFFE, published in THE NEWS for September 25, in which a report was given of Mr. Clutton's success by this method in St. Thomas's Hospital, London. We may add that FRY has also employed this method with great success, and has recorded six such cases in the *British Medical Journal*, for September 5, 1885; while LE BRUN reports, in the *Journal Méd. de Bruxelles*, for March and April, 1885, twenty-one such operations without a single mishap. These results certainly indicate that excision for varicose veins is an excellent operation, and justify the opinion that it is simple, safe, and almost sure to effect a cure.

The plan of injecting into varicose veins various coagulating substances still holds its ground, however, and may be rationally adopted in cases in which either the patient or the surgeon does not wish to face a cutting operation. Very recently, STEVENSON, in *The Lancet*, for October 23, 1886, reports eight cases treated with perfectly satisfactory results by injection of pure carbolic acid, as recommended by Watson Cheyne. The circulation is controlled by the Esmarch tube, applied round the thigh, while the patient stands, first with a few turns just tight enough to occlude the veins, and then firmly enough to cut off all the circulation. One minim of pure carbolic acid is then injected at a number of points, about an inch and a half apart, and cotton and collodion are applied over the punctures. The Esmarch tube is not removed until fifteen minutes after the completion of the last injection, and then the circulation is permitted to return only by very slow degrees. This is to avoid the danger of an embolus being swept into the general bloodvessel system. In addition, the patient is required to keep his bed for about a week.

By this means excellent results have been obtained in the treatment of varicose veins, although abscesses sometimes form at the seat of injection. Stevenson found this to occur in about ten per cent. of the punctures, but the abscesses were not larger than a pea, and they were painless.

In the *Medical Record*, for December 12, 1885, WEBER reported a successful treatment of varicosity of the saphenous vein by means of injection of four drops of pure carbolic acid at four different points, while the vein was compressed above and below the part injected until a coagulum was formed in it.

It appears, then, that the operation of excision of varicose veins has not entirely supplanted the method of coagulating injections, and it probably never will do so, since circumstances altogether unconnected with timidity on the part of the patient, or conservatism on the part of the surgeon, must not rarely debar the former procedure. Such being the case, we think the injection of carbolic acid, in the prudent manner suggested by Cheyne, is one of the safest and best ways of treating this frequent and troublesome disorder.

THE CURETTE AS AN ABORTIFACIENT.

AT a recent meeting of the Association of Physicians in St. Petersburg, DR. WEIDEMANN advocated the use of the curette in removing the fecundated ovum, when the production of abortion is imperatively demanded before the third month of gestation, as it may be not infrequently, especially in cases of exaggerated hyperemesis.

The arguments brought forward in support of the claim that this method is preferable to any other are forcible. The fœtus with its enveloping membranes, during the first three months of pregnancy, forms a polypoid tumor within the uterus, the attachment of which is at the seat of the placenta, and is quite firm, while the membranes are delicate and easily ruptured; if, therefore, as is often the case in early abortion, the fœtus alone is expelled, leaving behind its shell and the placenta, their subsequent decomposition is likely to lead to serious septic infection. With the curette the removal of the entire ovum with the placenta may be accomplished with certainty, avoiding the risks of the development of septicæmia, and, by the rapidity of the operation, preventing any excessive hemorrhage, which is often

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an alarming complication in those cases in which, the expulsion of the ovum having begun, the conclusion of the act is left to nature. It is necessary to dilate the cervix rapidly before employing the curette, in order to admit of its ready introduction, and to facilitate the removal of the uterine contents. It is needless to add that the strictest antiseptic precautions should be observed.

THE HOT SPRINGS HOSPITAL.

SEVERAL years ago the late Senator Logan visited Hot Springs, Arkansas, and obtained there so much relief from rheumatic troubles, with which he was afflicted, that he determined to make the benefits of the place available for the army and navy, and to that end obtained an appropriation for the construction of a hospital at Hot Springs for the use of the officers and men of those services. The sketch plans for this hospital were prepared by Dr. Billings, of the Army, and these, after approval by the Secretary of War, were elaborated, and detailed drawings and specifications prepared by a Washington architect, Mr. Smithmeyer. The buildings are now completed, Dr. R. S. Vickery, of the Army, has been assigned as surgeon in charge, and a circular from the War Department announces that the hospital will be opened for the reception of patients January 17, 1887. The circular says:

"Relief may reasonably be expected from the use of the Hot Springs water in the following classes of diseases, viz., gout and rheumatism in their various forms, after the acute or inflammatory stage has passed; neuralgia, peripheral or central, especially when depending upon gout, rheumatism, specific infection, or metallic poisoning; paralysis, if not recent, progressive, or organic; locomotor ataxia, or tabes, if not in advanced stages, and especially if traceable to specific infection; Bright's disease of the kidneys, only in the early stages; diseases of the bladder and urinary organs; functional diseases of the liver; dyspepsia; chronic diarrhœa and catarrhal diseases generally; chronic skin diseases, especially of the squamous or scaly forms; chronic conditions, resulting immediately from specific infection, either syphilitic or malarial; chronic alcoholism.

"In general terms, it may be stated that the Hot Springs water acts by stimulating all secretions and organic functions, increasing appetite, promoting digestion and assimilation; favoring tissue change and excretion of waste products, relieving internal congestions, and stimulating the blood-making function.

"In the following classes of diseases the use of the Hot Springs water is contraindicated: All acute, inflammatory diseases; tuberculosis; organic diseases of the heart and brain; aneurism; cancer; and all diseases in which stimulation of the circulation is to be avoided."

The hospital will accommodate about twenty officers and sixty-four enlisted men. Authority for admission to it is to be obtained from the Adjutant-General of the Army or from the Surgeon-General of the Navy.

In Europe it is very common to provide special hospital accommodation at certain mineral or thermal springs for the benefit of the army, but this is the first time it has been tried in this country, and the results will be looked for with interest. It should be possible from the records of this hospital to obtain much more definite information than we at present possess as to the real therapeutic efficacy of the Hot Springs waters.

MYXŒDEMA.

ORD, to whom the profession is indebted for the best description of this disease, holds that sporadic cretinism is only myxœdema beginning in early life, before development is complete; and since Kocher's observations the opinion has been widely held that myxœdema, cretinism, and cachexia strumapriva are phases of the same essential condition and due to the same cause, namely, to abolition of the function of the thyroid gland. We have already referred to Horsley's experiments on monkeys, in which removal of the thyroid gland, carefully performed, without injury to the nerves, was followed by the symptoms typical of myxœdema; and also to the interesting paper by Reverdin on the identity of spontaneous and operative myxœdema. In addition to what is there stated we would call attention to the fact that, in the *Medical Record* of January 24, 1885, Kinnier gave an account of a case of spontaneous myxœdema, in a woman forty-five years old, with characteristic symptoms, and emphasized the identity of the symptoms with those of the so-called cachexia strumapriva. Wadsworth has also described an interesting case in the *Boston Medical and Surgical Journal* of January 1, 1885. Further, Miller has reported, in the *British Medical Journal* of February 28, 1885, the case of a woman, thirty-eight years old, who developed myxœdema after labor accompanied by profuse hemorrhage; while Suckling, in the *Lancet* of May 16, 1885, gives an account of a case of myxœdema in a woman seventy-six years old.

All these cases go to show that there is a spontaneous myxœdema which cannot be distinguished from that which follows removal of the thyroid gland. They do not, of course, invalidate the opinion that the latter is dependent upon the operation. There is entirely too much evidence now accumulated to permit any doubt that the removal of the thyroid gland may be followed by myxœdema in patients who had not manifested any tendency to it, and it cannot be denied, in the face of Horsley's experiments on monkeys, that it may follow the operation in cases in which there is no reason whatever to suspect a latent tendency to it. The

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similarity of the manifestations of surgical and spontaneous myxœdema does not establish the fact that they are identical diseases, so far as their essential cause is concerned. Nevertheless, it is curious to observe that most of the cases of spontaneous myxœdema occur in persons who have passed the period at which goitre usually develops, and this fact furnishes some support to the theory of Ord that it is but a later manifestation of a tendency which, under circumstances favorable to its early development, shows itself in enlargement of the thyroid gland. It may yet be shown that goitre is Nature's safety-valve, which, being removed, the pathological process is only diverted and manifests itself in a different set of tissues. The effect of removal of a healthy thyroid gland may even similarly let loose upon the adjacent tissues forces which were innocent so long as they were undisturbed. If this view seem reasonable, we think that there may be, hereafter, more harmony between those who hold the opinions of Ord, and those who consider spontaneous and surgical myxœdema to be distinct disorders.

BRAIN INJURY IN FORCEPS DELIVERY.

AT a recent meeting of the Edinburgh Medico-Chirurgical Society, BYROM BRAMWELL showed a boy suffering with left hemiplegia, which he attributed to an injury received at birth. The delivery of the patient's mother was tedious, and had been finally effected with the forceps. Since infancy the child had been subject to epileptiform seizures, but at the time of observation there was no mark of injury of the cranium. The surgical aspect of this case involved the question of operative interference, suggested by the fact that the patient could localize a painful point over the motor area of the left arm. The judgment of the Society was adverse to it, and we do not see how it could have been different.

This case, however, is not cited so much on account of its surgical aspects as on account of its bearing upon the question of the effect upon an infant of the compression of the head by the forceps. That decided compression of the child's head often takes place in forceps delivery, in spite of the greatest care on the part of the accoucheur, and notwithstanding the use of the most suitable form of forceps, cannot be doubted, and it would be interesting to have some collection of the proportion of cases in which subsequent manifestation of brain disturbance could be reasonably attributed to the accidents of such delivery.

One of the ablest neurologists of this city entertains the opinion that very many cases of impaired brain function are due to compression at the time of birth; and his opinion seems reasonable enough. The case related by Bramwell is one in point, and others might be cited. Although it is not perfectly clear, it may be, however, that those who think that the remote dangers to the child in forceps delivery are much greater than is generally supposed, may speak more from a general impression than from a careful study of the subject. Still, their views are so plausible *à priori*, that it is desirable that enough evidence be collected to settle the question definitely for the benefit of the many accoucheurs who apply the forceps frequently.

AT the annual meeting of the College of Physicians of Philadelphia held January 5, 1887, the following officers were elected: President, S. Weir Mitchell, M.D.; Vice-President, John H. Packard, M.D.; Censors, Drs. Lewis Rodman, William Goodell, Alfred Stillé, and Samuel Lewis; Secretary, Isaac Norris, Jr., M.D.; Treasurer, Charles Stewart Wurts, M.D.; Honorary Librarian, James H. Hutchinson, M.D.; Recorder, J. Ewing Mears, M.D.

AT the annual meeting of the Philadelphia County Medical Society, held on January 5, 1887, the following officers were elected: President, Dr. J. Solis Cohen; Vice-Presidents, Drs. W. W. Keen and E. T. Bruen; Secretary, S. Solis Cohen; Treasurer, L. K. Baldwin; Censors, Drs. Joseph Hearn and De Forest Willard.

DR. JOHN SCOTT, of San Francisco, an active and able gynæcologist, died on December 24, 1886. He had been largely instrumental in founding the California State Woman's Hospital, and was a member of the State Society, the San Francisco Obstetrical Society, and, at the time of his death, Vice-President of the American Gynæcological Society.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 6, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

ELECTION OF OFFICERS.

THE annual election of officers resulted as follows:

President.—A. Jacobi, M.D.

Vice-President.—Wm. H. Draper, M.D.

Treasurer.—Wm. F. Cushman, M.D.

Member of the Board of Trustees.—Everett Herrick, M.D.

Member of the Committee on Admissions.—H. E. Crampton, M.D.

Member of the Committee on Library.—F. P. Kinnicutt, M.D.

DR. L. EMMETT HOLT read a paper on

THE ANTISEPTIC TREATMENT OF SUMMER DIARRHŒA.

The term summer diarrhœa, he said, he used for the reason that it expressed an affection with which all are familiar, without raising any questions in regard

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to the pathology of the conditions present. While this paper was specially devoted to the medicinal treatment, the author laid stress upon the point that other methods of treatment than the use of drugs were not ignored by him. It is of prime importance that suitable food and the best hygienic surroundings should be secured for the patient. Unfortunately it is often impossible to secure satisfactory sanitary conditions for the children of the poor in large cities; but with suitable care and the use of appropriate remedies, much could be accomplished.

These cases of summer diarrhœa, with the exception of instances of pure cholera infantum, Dr. Holt believed, are all of dyspeptic character, and are primarily due to fermentation or putrefaction in the intestines. Among the factors entering into the causation of the trouble, he mentioned heat, improper feeding, and bad hygienic surroundings. The affection is evidently not due to heat alone, or else we should find that the greatest mortality was among infants under six months of age, which is not the case. During the first six months a much larger proportion of children are wet-nursed than later on, and it is after this age that the summer diarrhœa is the most fatal.

In speaking of the influence of heat, he spoke of its effects upon the food as well as upon the child, and referred to an instance in which, at the New York Infant Asylum, no less than twenty-three children became affected with diarrhœa in a single day from the use of tainted milk. In tenement-houses, all the conditions are exceedingly favorable for the contamination of milk, and it is only a wonder that more children do not suffer from this cause than is actually the case. In this connection he spoke of the development of poisonous ptomaines from food, and alluded particularly to the investigations of Professor Vaughan, of the Michigan State Board of Health, in regard to the principle which he has designated as "tryrotoxicon." Brunton's researches he also thought had furnished the solution of many hitherto insoluble problems. Cerebral symptoms have been generally supposed to be due to the sudden stoppage of the diarrhœa. Huchard has shown, however, that poisonous ptomaines are evolved from human feces in health; and this is the case to a much larger extent in disease.

In summer diarrhœa, Dr. Holt went on to say, the inflammatory changes are usually in the large intestines, and colitis is secondary and consequent. A specific microbe, as the cause of the disease, has not as yet been demonstrated; but quantities of bacteria, of various kinds, are always found to be present. The indications for treatment are as follows:

1. Clear out the bowels.
2. Stop decomposition.
3. Restore healthy action in the bowels.
4. Treat the consequences of the intestinal disease.

In the first place, it is necessary to clean out the bowels, for the same reason that the surgeon thoroughly cleanses a wound before applying his antiseptics. In all cases Dr. Holt begins his treatment with a cathartic, in order to remove the altered secretions, and if the stomach is not very irritable, there is nothing which, in his opinion, is to be compared to castor oil for this purpose. If the stomach is irritable, he is in the habit of using large injections of water by means of a fountain syringe. He has found by experiment that it takes about a pint of water to reach the ilio-cæcal valve, and at least this quantity should be used. In many cases the castor oil is all the medicine that is required, if proper food and general care are employed afterward, and the usefulness of this remedy is perhaps better understood by the laity than by most of the profession. In cases, however, in which the passages, consisting of pure serum, are odorless and alkaline in reaction, no preliminary cathartic is required.

In order to stop decomposition and restore healthy action in the bowels, he said he had found salicylate of sodium the most efficient agent. If there is much vomiting, it is better to withhold food altogether for from ten to twenty-four hours; employing carbonic acid water, or thin barley water, for allaying thirst. In children under two years of age, no milk whatever should be allowed; but in case milk is employed, peptonized milk is much less likely to do harm than either condensed or ordinary cow's milk. He has known many relapses to be brought on by the use of milk.

The treatment of the consequential lesions was the fourth point considered. When a condition of ulceration has been reached, he believes the use of astringents to be absolutely valueless. Three things are required for a cure: (1) Appropriate dietetic treatment; (2) the continuance of the antiseptic; and (3) the washing out of the whole large intestine every day with pure water, or with a weak antiseptic or astringent solution. The chemical agents which he prefers for these injections are benzoate of sodium and nitrate of silver. It is a fact, he said, that all drugs which have formerly proved useful in the treatment of summer diarrhœa, with the exception of opium (in regard to which there has been much discussion), are of a more or less antiseptic nature.

Dr. Holt then proceeded to give a *résumé* of the history of the use of antiseptic remedies proper in this affection, from the time when Mays first employed creasote in 1846. As long ago as 1853, Matthison had reported much success from the use of salicine, and in 1858 S. W. Smith published in the *British Medical Journal* his successful experience with willow charcoal. In 1879 Kilner used salicylate of bismuth and calcium at St. Thomas's Hospital, London; and in 1880 Hutchins, of Brooklyn, reported good results from the use of salicylate of calcium alone. Segue, of Brooklyn, also meet with much success in the treatment of the diarrhœa of phthisis with the salicylates. In 1886 Braithwaite recommended, in the *British Medical Journal*, the use of salicylate of iron, which he had found very efficient. Naphthalin has been highly lauded by Fallenberg and other writers, and bichloride of mercury is recommended in Ringer's *Therapeutics*. Rosenberg, Millard, and Marten, have reported good results with the latter remedy; and Schultz has treated seven cases of dysentery with it, with but one fatal result.

Even the most recent text-books on diseases of children, Dr. Holt went on to say, advocate practically the same treatment for summer diarrhœa that was in vogue fifty years ago. In order to find out what is the present practice in New York institutions, he wrote to the physicians of fourteen of them, including the Nursery and Child's Hospital, the Foundling Asylum,

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St. Mary's Hospital for Children, the Demilt Dispensary, and a number of other prominent hospitals and dispensaries, in which upward of 40,000 children are treated annually—25,000 for diarrhœal diseases. He found, among other facts, that opium is used in nearly all, and bismuth in all. Castor-oil, as a preliminary medication, is used in six, and castor-oil emulsion, with equal parts of the oil and paregoric, in three. Chalk-mixture, in combination with paregoric and an astringent, is used in several; calomel in three; ipecac in three; pepsin in one; iodoform in one; morphia and atropia hypodermatically in one; and astringent injections in three.

Dr. Holt said that in his own experience he had found that with the use of opium, bismuth, and astringents, 50 per cent. of cases were cured, 27 per cent. were improved, 17 per cent. were not improved, 7 per cent. died. Abstinence from milk was not so strongly insisted on in his earlier cases as in his later ones. A year ago last summer he first commenced the use of salicylate of sodium. In about two-thirds of the cases in which he used it he gave castor-oil as a preliminary to the treatment. In a few cases where there was great irritability he employed Dover's powder simply for the purpose of controlling this. Out of 81 cases treated with the salicylate of soda, 60 were cured, 14 improved, 6 not improved, and 1 died. The results of all his cases were as follows: Cured, 84 per cent.; improved, 7 per cent.; not improved, 7 per cent.; died, 1 per cent. The unimproved cases, he said, illustrated the difficulty of keeping up a proper course of treatment among the children of the poor.

Of 44 cases in which he had employed naphthalin, 67 per cent. were cured, 15 per cent. were improved, 13 per cent. were not improved, and 1 per cent. died. In 27 cases treated with resorcin, 22 per cent. remained unimproved; and it soon became evident to him that this agent was not nearly so efficient as either salicylate of sodium or naphthalin. He had also used bichloride of mercury in 28 cases, but had not found it as successful as the remedies named. The comparative results of treatment by these different remedies were, then, as follows:

Cured by opium, bismuth, etc. .	50	per cent.
" " salicylate of sodium .	84	"
" " naphthalin . . .	67	"
" " resorcin . . .	55	"

Dr. Holt then related a case seen in consultation, which illustrated the value of salicylate of sodium. The child was seventeen months old, and was first seen by him on the fifth day of the disease, when it was in an apparently hopeless condition; the ordinary treatment by bismuth and opium having entirely failed to arrest its progress. The rapid, weak pulse, elevated temperature, and other unfavorable symptoms which were present he attributed to the toxic effect of the decomposition which was taking place in the intestinal canal. He suggested the employment of castor oil, to be followed by the salicylate of sodium. The physician in attendance strongly objected to the cathartic dose, on the ground that the child was not strong enough to stand its depletory effect. He was finally persuaded to try it, however, and the patient rapidly improved under the antiseptic treatment by which it was followed.

Dr. Holt gives the salicylate of sodium in doses of from one to three grains, every two hours, and in the form of an aqueous solution, which can be taken with the food or drink. Instead of producing vomiting, he has found that it often allays irritability of the stomach. Naphthalin can be given in doses of from half a grain to five grains, and resorcin in doses of from half a grain to two grains. Bichloride of mercury is apt to disagree with the stomach, and he has known doses of $\frac{1}{120}$th to $\frac{1}{60}$th of a grain produce vomiting.

While summer diarrhœa is not to be regarded as depending on a single uniform agent, the immediate cause of diarrhœa must be looked for in the putrefactive changes taking place in the food (which, indeed, often begin outside the body before it is eaten); diarrhœal discharges, at the outset at least, should be regarded as salutary. Dr. Holt mentioned that he does not undervalue the efficiency of opium in other forms of diarrhœa. In conclusion, he said that the use of evacuants constitute an essential part of the antiseptic treatment of the disease under consideration, and that, as the result of his experience, he gave the preference to salicylate of sodium after a cathartic had been employed. The antiseptic treatment is especially valuable, because it removes the cause of the trouble in the intestinal canal, and does not simply combat its effects.

DR. WILCOX related his experience with naphthalin in the treatment of diarrhœa, stating that he had employed it in thirty-two cases, nearly all of which, however, were in adults. In his hands it had proved so efficient that he had come to regard it as of the same value in diarrhœa as mercury, and iodide of potassium in syphilis, or quinine in malarial trouble. In order to secure its full effect the patient should take at least 60 grains a day, and in some cases 120 grains a day are required. He gave it chiefly in starch capsules, with oil of bergamot to conceal its odor. Occasionally he had found that the urine became smoky under its use, but no albumen or casts could be detected in it. He had employed it with excellent effect in eighteen cases of chronic diarrhœa, and some cases of chronic dysentery. In one case of twenty-five years' standing, in a man sixty-one years of age, a cure was effected by the use of 90 grains a day.

In two cases he had employed it successfully in the diarrhœa of typhoid fever. The patients were in the third week of the disease, and took from sixty to ninety grains a day; which reduced the stools to two in the twenty-four hours, and rendered them perfectly odorless. Naphthalin also had an antipyretic effect in these cases, and he regarded it as quite as safe as any of the antipyretics now so commonly employed, such as antipyrin, thallin, and antifebrin. He had also tried resorcin to some extent, but with very different results.

DR. ANDREW H. SMITH remarked that it had been his idea for some time that the cause of summer diarrhœa could be best treated by the aid of antiseptics. The essential oils which are in common use in domestic practice are really antiseptics, and the same is true of the pennyroyal, spearmint, and peppermint teas so often resorted to in the country.

DR. JOHN C. PETERS said that he believed he was among the first to designate summer diarrhœa as a filth disease. Bacteria will live in opium and in a ten grain

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solution of calomel. He agreed with Dr. Smith in regard to the antiseptic value of the mints.

DR. VAN SANTVOORD said that Dr. Holt was no doubt correct in considering the disease primarily dyspeptic in character. In the Infants' Asylum, on Randall's Island, he had been in the habit of using opium where there had been frequent and watery passages, and he often gave it hypodermatically, employing from five to ten minims of the officinal solution of sulphate of morphia, with from $\frac{1}{100}$th to $\frac{1}{200}$th grain of atropia. Bismuth he regarded as of service, not simply from its mechanical effect, but because it is a true antiseptic, and he gave it in suitable doses after each feeding. The inflammatory changes in summer diarrhœa are largely located in the large intestine, and he thought that large astringent injections should be used to flush out the colon. He combined an alkali with the astringent in these injections in order to be able to get at the mucous membrane by removing the mucus from it. Nothnagel has shown that strong saline solutions excite retroperistalsis in the intestines, and he thought that these might perhaps be used with good effect.

The PRESIDENT heartily agreed with what Dr. Holt had taught in his paper, and particularly as to the antiseptic character of remedies long in use. As regards pepsin, which he never regarded as simply an inert mechanical substance, he had published an article twelve years ago, in the *American Journal of Obstetrics*, in which he distinctly claimed that it was an antifermentative; and such was still his conviction. He also agreed with Dr. Holt, as to the importance of appropriate dietetic treatment. If there is one special danger in summer diarrhœa it comes from the use of milk, and for twenty-five years he had taught that the disease could not be cured without the omission of milk. It is often necessary to withdraw it for a number of days; but there are plenty of things that can be resorted to which take its place. As a rule, he substitutes for it the white of egg, raw, mixed with barley water, or other farinaceous drink. Forty years ago Meiser, of St. Petersburg, advised the use of raw meat; but although this in some respects is an excellent form of nourishment, it should be avoided if possible, on account of the danger of introducing into the system the tænia canellata, a much more formidable variety of tapeworm than the ordinary tænia solium, because of the difficulty in removing it.

DR. GEORGE H. PEABODY said that he had come to look upon naphthalin as a very valuable addition to our therapeutic resources in a number of intestinal complaints. For some time past he has been using it in all the earlier cases of typhoid fever which came under his care at the New York Hospital. It is reasonable, he thought, to look for relief in a remedy which acts directly on the local lesions, and several cases have already occurred in his practice in which the disease was apparently aborted by this remedy. He referred particularly to a case which came under treatment on the second day of the disease. By the thirteenth day the fever was gone and convalescence had commenced; yet the patient had had the usual prodromal symptoms, and the characteristic eruption and enlargement of the spleen had afterward been well marked.

Dr. Peabody also mentioned a case of chronic diarrhœa of twenty-one years' standing, in which the patient never had less than seven movements a day. He had been under treatment for a broken leg in the surgical wards of the hospital; but though while there the usual astringent remedies were employed, the diarrhœa still continued unchecked. On his transferral to the medical wards he was placed on the use of naphthalin, and in ten days the case was cured; the passages by that time having become normal in quantity, color, consistence, and odor. He also mentioned another case in which the patient, who had had repeated attacks of chagres fever in Panama, suffered from chronic diarrhœa for four years. He also was completely cured by naphthalin, without the aid of astringents. All his cases of typhoid fever, Dr. Peabody said in conclusion, are given a preliminary full dose of calomel.

DR. WESLEY M. CARPENTER referred to the remedies which he had seen used with good effect in country practice. The first was hard cider, which was used with much benefit by veterans of the late war suffering from chronic diarrhœa. The second was salicin, which he had seen successfully employed in a large number of cases of dysentery and diarrhœa, including tubercular diarrhœa. Both these agents belong to the group of antiseptics.

DR. ARCHER H. SMITH asked if it was not true that the salts of salicylic acid are efficient only in the presence of acids.

DR. HOLT replied that the acids in the stomach and intestines would cover the case. Dr. Cauldwell, whom he had expected would be present this evening, had used salicylate of sodium with much success in twenty cases of the diarrhœa of phthisis.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, December 8, 1886.

TUMOR OF THYROID REMOVED BY SOCIN'S METHOD.

DR. WEIR showed a tumor recently taken out of the substance of the thyroid gland after the method advocated by Socin, of Basle. This surgeon, he stated, in order to avoid the necessity of extirpation of the thyroid, with its consequent risk of myxœdema, had called attention to the fact that in most cases the new growth of thyroid tissue or of neoplastic elements could be readily separated from the normal gland tissues. To do this, it is only necessary to cut through the overlying stratum of healthy thyroid until the capsule of the tumor is reached when enucleation can easily be accomplished. The divided gland tissue may give rise to considerable venous oozing, but this is easily controlled. Socin's experience embraces now over fifty cases without any cachexia strumapriva following. In the case presented by Dr. Weir the tumor was found in the person of a dwarf of twenty-one, who was defective mentally, and had an appearance suggestive of commencing myxœdema, and in whose neck, on the left side, was an enlarged irregular thyroid gland which had existed since infancy. On the right side there was no general enlargement of the gland to be seen or felt, but nearly on a level with the larynx was a roundish movable tumor the size of a hen's egg, which had appeared within the past eighteen months, and which caused considerable pain on that side of the head. It was also increasing in

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size. It moved with the trachea in swallowing. It was explained to the mother, who was anxious to have all the growth removed, perhaps for a commercial reason, that this ought not to be attempted, and that only the swelling, now increasing in dimension, could be interfered with. An incision was made vertically over it, the thyroid gland reached, and its substance, of a deep red color, cut through to the depth of more than a quarter of an inch until the tumor was exposed freely, when with the end of the scalpel and with the finger-nail the enucleation of an hour-glass-shaped growth two inches long and three-quarters of an inch wide was promptly accomplished. The venous oozing from the substance of the thyroid gland was easily checked by clamps and ligatures, and the cut gland edges sewed together except at the lower end, where a drainage tube was inserted, and then the skin cut was sutured in a similar manner. Secondary union occurred.

The following is the report of the pathologist, Dr. Peabody:

The main tumor is spheroidal in shape and in great part surrounded by delicate fibrous capsule. It is about three-quarters of an inch in diameter. Connected with it is a smaller one of same color, consistency, and general character. It is very friable, not easily cut for microscopic examination. Sections show it to be divided into lobes which present the appearance of compound racemose gland, with tubes and ducts lined by cylindrical epithelium. The general epithelium of the gland is shapeless. Diagnosis, adenoma.

SARCOMATOUS FLOATING TUMOR OF THE KNEE-JOINT.

DR. WEIR presented a sarcomatous pedunculated tumor which he had removed, October 23, 1886, from the left knee-joint of an Italian aged forty-two years, who had had disability in that articulation for several months. At first beginning as an ordinary synovitis, to this were supplemented soon sundry painful "catchings" of the joint, with aggravation each time of the difficulty in walking. On the inner aspect of the knee could be felt a movable, rather hard body the size of the end of the forefinger, whose excursions were limited to that side of the joint in an area corresponding nearly to the upper limit of the patella. On making an incision, under carbolic spray, down to the mass previously fixed by a tenaculum, it was found to be, instead of cartilage, a reddish-yellow tumor about an inch long, attached by a slender pedicle which, after being tied with catgut was severed, and the growth removed. The wound was not sutured but dressed antiseptically and the limb secured in a posterior splint. No reaction followed, and at the end of ten days the dressings were taken away, and the patient allowed to move his limb cautiously about the bed. A week later he began to walk. On November 22d, when the patient was fit to be discharged from the hospital, without any intimation he leaped from the window of his ward and fell a distance of four stories and killed himself. Among his other injuries a compound fracture of the left tibia occurred. The tisues of the joint were carefully examined microscopically to see if any changes similar to those observed in the tumor removed by the operator existed, but none were found. The reason for this was that the movable body was reported by the pathologist to be a fibrosarcoma. His statement in detail is as follows:

Pathologist's Report.—The tumor presented for examination is flattened, caudate, and measures 2 x 1 x ½ centimetres. It has been incised over its whole length. It weighs five grammes. Microscopic examination reveals it to consist of fibrous stroma with varying amounts of small spindle cells. In some places these lie close together; in others they are few and scattered. It also contains numerous arteries with normal walls, and there is a great deal of blood-pigment scattered generally through the tissue.

As this is apparently the first case in which a post-mortem examination has been held, it is interesting as confirming the statement made in a recent article published by Dr. Weir on this subject, that clinically it is sufficient to remove the offending mass. His first case, operated on in 1884, is still free from recurrence, and lends additional support to this view.

LAPAROTOMY FOR SUPPURATIVE PERITONITIS FROM ACUTE PERFORATION OF APPENDIX VERMIFORMIS.

DR. WEIR exhibited the cæcum and stump of an appendix vermiformis fistule closed by several silk sutures, which had been obtained from the post-mortem of a laparotomy case operated on by him December 6th, and the details of which, taken from the hospital note-book, were as follows:

Edward V., aged twenty, single, Canadian, was admitted to the New York Hospital, Medical Division, Dr. Vought, House Physician, December 6, 1886, with the history that he had been well till seven days ago when, on account of headache, he took two cathartic pills without relief. At this time he was exposed a good deal to cold and wet. He kept on taking cathartic pills and had following this an attack of diarrhœa. Four days ago he began to have pain in the abdomen which grew more more and severe, especially in the right iliac region. He has also had some cough, and vomited eight or ten times during the past week. Last night he had a severe and this morning more severe and general pain in abdomen.

Examination.—Abdomen swollen and very tender on slight pressure. Breathing entirely thoracic. Patient lies in dorsal decubitus; knees not constantly drawn up. In right iliac region there is a feeling of resistance and over this a slight dulness. Over the rest of the abdomen the resonance is tympanitic. The abdominal muscles are rigid; splenic area large. A needle inserted into right iliac fossa the depth of one and one-half inches draws sero-purulent fluid. Posteriorly, on left side and low down, inspiration is rough and a few rough râles are heard over chest. Temperature 102.8°; pulse 135; respiration 32 at 4 P. M.

Transferred to surgical division, Dr. Hughes, House Surgeon, at 9 P. M. Operation by Dr. Weir. On examination after etherization no marked dulness or swelling was found in the iliac fossa, but an aspirating needle inserted near previous puncture in right iliac region withdrew pus with the needle *in situ*; for a guide an incision two and a half inches long was made just above Poupart's ligament upward and outward and extending beyond the superior spinous process. On opening into the abscess cavity considerable watery pus flowed out. By digital examination it at first appeared as if the abscess had been limited on its inner side by the adherent coils of intestines, which could be plainly felt.

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The unusual amount of discharge, however, led to a more free examination, and it was soon recognized that the general cavity of the peritoneum was involved in a suppurative peritonitis.

A median laparotomy was then decided on. An incision was made on the median line about six inches long; afterward enlarged so as to extend from symphisis to three inches above umbilicus. The parts were found very much congested. There was a large exudation of pus with free soft adhesions. The intestines were partially taken out and laid in hot towels and the right side of pelvis carefully examined. A perforating ulcer was found at root of vermiform appendix on its free surface, posteriorly throughout its whole length it had a mesenteric attachment. In order to occlude this satisfactorily the entire appendix was tied off with catgut and the stump ligated and covered in by peritoneum, by several Lembert's sutures made with fine black silk. The abdominal cavity was thoroughly douched with warm water and intestines replaced, and a duplication of iodoform gauze was inserted in the midst of the intestines, in the iliac fossa, and in the pelvis (Mikulicz's method). A large rubber drainage tube was also introduced in iliac fossa through first wound, and another into the pelvis through the lower end of the median incision. The median incision was sewed together with strong silk. Bichloride compresses and cotton dressings were applied, all secured by a binder. No intestinal concretion was detected in the appendix or in the peritoneal cavity.

The patient's condition grew rapidly worse during operation; administered fld. ext. digitalis ♏ iv, and whiskey ℥ij hypodermatically, and per rectum, atropine gr. one-forty-eighth, with firm bandaging of the extremities. At termination of final dressing his condition was encouraging, color good. Pulse 185 and moderately strong at wrist. Immediately after the operation was given a hot air bath and hot water bottles were placed around him.

12 midnight, temperature 101.2°, pulse 180, respiration 34; an enema of milk ℥ij, whiskey ℥j. Ordered tr. strophantus ♏ij and brandy ℥ij, every three hours by mouth, and whiskey by mouth and by rectum.

Dec. 7. 3 A. M. Administered hypodermatic of Majendie ♏ iv. at 11 P. M. to quiet restlessness. This was repeated at 1.50 A. M.

3 A. M. Temperature 102.8°, pulse 80, respiration 24.

3.30 A. M. Died.

The post-mortem showed that the peritoneum was intensely congested and covered with recent lymph. There was about one drachm of pus in the pelvis. The spleen was a trifle enlarged. The omentum was rolled up toward the transverse colon. The mesenteric glands were large. The stomach was normal. The common bile duct was pervious. Mucous surface of the duodenum was normal. Some of Peyer's patches were pigmented. The mucous surface of small intestine otherwise normal.

The vermiform appendix had been removed and its attachment to the cæcum apparently closed by a ligature. The surgically removed vermiform appendix was markedly thickened by a swelling of all its coats. Its interior was lined by a thick ragged false membrane and there was a perforation near its attached end. The right lung, on its anterior aspect, showed evidence of recent pleuro-pneumonia.

Dr. Weir remarked that there were two points connected with this case of particular interest. One was the difficulty of determining without exploratory iliac incision and sometimes even after this was done, whether or not the typhlitic abscess was yet a local affair. Peritoneal symptoms were not unfrequently seen with perityphlitic inflammations, especially with that variety which resulted in limited peritoneal abscess. It is possible to get pus by an exploring needle from a collection not recognizable to palpation and it is also possible, and it nearly was accomplished in this case, to open into the general peritoneal cavity and yet be deceived into thinking it a localized abscess. The absence of tumor and profuseness of thin sero-pus led to a renewed and thorough examination which had, until then, been refrained from lest limiting protective adhesions should be broken down. The second point was the treatment of the perforated appendix. Should the sloughy opening be trimmed off and its edges inverted and closed as in an intestinal perforation and the appendix preserved, or should it be boldly removed as in his case? The closeness of the perforation to the cæcum interfered with his desire to cut away the sloughy edges left even after the excision of the appendix, but where practicable this, he thought, should be done before the Lembert sutures were applied. He, however, knew that simple ligation without peritoneal inversion had frequently sufficed where the appendix had been removed in this and other difficulties. He favored the usual extirpation of the appendix as not adding to the risk and as preventing future trouble.

DR. SANDS believed that in the vast majority of cases of what we term peritonitis, which terminates in abscess, the disease arises externally to the peritoneal cavity. He had operated for perityphlitis a great many times, but had never yet found a circumscribed abscess bounded simply by coils of adherent intestine. He was aware that such is a common view, but he believed it to be inaccurate. He also had observed that when perforation of the appendix occurred into the serous cavity the result was invariably fatal. A short time ago a case came under his observation in which the symptoms of circumscribed tumor were wanting, but in which there were present marked pain and tenderness in the cæcal region. In that case, upon incision through the abdominal wall over the seat of tenderness, a small amount of pus escaped; and on putting the finger into the opening the feeling of intestine was imparted. The patient died a few hours after the operation, and no examination was made post-mortem.

DR. BRIDDON remarked that he had made autopsies in three cases where death occurred in from twenty-four to thirty-six hours, from perforation of the appendix; there were no limiting adhesions but general profuse peritonitis; no formation of an abscess at all, as he did not think there was time.

DR. SANDS said, in reply to Dr. Weir's remarks, that he had carefully explored many cases of perityphlitic abscess, but had never found a boundary wall of intestine; he had felt the colon and the cæcum at the bottom of the wound, but had only been able to recognize bare intestinal coils in a very few cases in which there was no circumscribed abscess, and in which he could determine the presence of pus within the peritoneal cavity.

In one instance he was called in consultation to see a

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gentleman who was said to have had symptoms of perityphlitis. But, at the time of his visit the tumor in the cæcal region had subsided and the patient was almost comatose. The cause of the coma proved to be meningitis, and at a post-mortem the subsidence of the tumor was found to be due to the pus having travelled within the sheath of the psoas muscle, the intestinal walls forming no part of the boundary of the abscess. As regards Mr. Treeve's investigations, he would not dispute their accuracy, but he could not advise very early operative procedures, as he had seen so many of these cases terminate favorably without incision; a few tumors had ruptured spontaneously, but the majority had subsided without evidence of rupture. He believed that very few cases would be injured by being allowed to remain for a week or ten days, according to the local symptoms; the speaker, however, considered that to operate always within two or three days from the onset of the disease would be much like performing laparotomy for every case of pain in the abdomen.

THE PRESIDENT asked Dr. Sands if he did not think the use of the exploring needle of advantage in these cases of perityphlitis, before the end of a week or ten days, in order to enable the surgeon to decide as to the date of operation.

DR. SANDS replied that, so far as his experience went, he had always found it safe to wait. He deprecated early operations, first, because they might be unnecessary, and secondly, because they might be unsafe. Regarding the first point, he had seen a large number of cases in which the inflammatory swelling had subsided without any surgical operation, and the patients had got well. The danger of spontaneous opening of the abscess at an early period into the peritoneum he believed to be exaggerated, and to be unsupported by clinical facts. He could recall but a single instance in which such a rupture had occurred as early as the seventh day of the disease.

Concerning the second point, namely, the risk attending early operation, he believed it to depend on the liability of the entrance of the fetid contents of the abscess into the peritoneal sac. He thought that perhaps he had not made himself clearly understood when he had contended that circumscribed perityphlitic abscesses are usually external to the peritoneum. He did not mean to deny the anatomical relations of the cæcum, which he thought are generally understood. But he failed to see why the almost complete investment of the cæcum by the peritoneum, or the presence of a mesentery attached to the appendix vermiformis, should determine the entrance of fecal matters escaping from a perforated appendix into the peritoneal cavity. His supposition was, that in cases of circumscribed abscess due to such perforation, this was preceded by adhesion of the serous membrane covering the appendix to that lining the iliac fossæ, and that thereby the latter was lifted by the pus and fecal matter and the invasion of the peritoneal sac prevented. But adhesions would not usually be limited to the perforated appendix; it would often involve the peritoneum covering the cæcum, the abscess, and the back of the anterior abdominal wall. Such adhesions, however, would be absent at an early period, and hence one danger connected with early incision. He remembered several cases in which the presence of pus had been demonstrated by the use of an aspirating needle, and in which an incision made carefully along the latter held *in sitû*, opened the peritoneal sac, adhesions not having yet taken place. After closing the opening made in the serous sac, adhesion ultimately occurred, and the abscess evacuated its contents externally with safety, and without further surgical operation.

It is fair to presume that the simultaneous opening of the peritoneal sac and the cavity of the abscess might have been followed by a fatal result. Dr. Sands would not dispute the desirableness of an early evacuation of the contents of a perityphlitic abscess, but he thought that the danger attending such operations should be duly weighed. Another reason for delay is that even when the peritoneum covering the abscess does not become adherent to that lining the back of the anterior abdominal wall, the line of reflection may be pushed upward by the growing swelling, so as to be above that generally selected for incision.

DR. BRIDDON remarked that a patient in the service of Dr. Andrew H. Smith was referred to him, in whose case there was a swelling, the most prominent portion of which appeared to be about three inches above Poupart's ligament, with a zone of less resistance immediately above the ligament. An aspirating needle was introduced one inch above the ligament and gave exit to pus; it was left in position and the usual incision was made. When the transversalis fascia was reached it was found that the peritoneum had not been pushed up by the abscess and that the needle consequently had passed through two of its layers. It was displaced upward by the fingers until the cavity of the abscess was opened without further implication of the peritoneum than that caused by the needle. The patient made a prompt recovery.

THE PRESIDENT asked, if, given a case where there was no appreciable tumor, symptoms should lead to the use of the needle and pus be detected, would there be greater danger of opening the peritoneum at that time than in operating for ligation of the external iliac artery, the incision being made close to Poupart's ligament?

DR. SANDS thought it would be possible but considered that it might be more difficult in consequence of morbid alterations due to inflammation.

DR. BRIDDON said that he had regretted operating early in one case which was under the care of the late Dr. Wm. C. Hunter. The swelling was situate deep in the iliac fossa, and aspiration gave exit to pus. The needle was left *in situ*, and after division of the muscular and aponeurotic coverings by the scalpel, further separation was made by the fingers until a cavity was reached at a very considerable depth from the surface. It contained only a small amount of pus. It was drained and dressed in the usual way, and everything went well for forty-eight hours, when he developed an acute and rapidly fatal peritonitis.

DR. WEIR was unwilling to let the remarks of Dr. Sands pass unchallenged. He could recall three instances that had occurred tolerably recently in which, after the abscess had been opened, he could feel with his finger toward the median line several coils of small intestine which, glued together, made up the inner wall of the abscess. Moreover, the extensive researches of Treves utterly disprove the old idea of the cæcum and appendix being continuous, posteriorly or otherwise,

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with the subperitoneal alveolar spaces. In fact, in a hundred dissections made by this English observer he had never yet seen the posterior surface of the cæcum uncovered by peritoneum, nor had he encountered a meso-cæcum. The reality is that in the great majority of cases the entire beginning of the large intestine is completely surrounded by peritoneum up and upon the ascending colon. Moreover, the mesentery of the appendix is derived from the ilium in nearly every instance where it existed. Hence, perforating appendicitis and the still more surely perforating cæcitis must primarily produce a peritoneal suppuration, limited or diffused, or else by the lucky occurrence of adhesion before the accomplishment of the perforation give rise thus to a subperitoneal abscess—the so-called paratyphlitis. Both varieties undoubtedly exist, but if it is admitted that the first form occurs, it is right that an evacuation of the matter should be had as soon as its presence is recognized. This can often be arrived at early by the use of an aspirator needle, or the question of time will generally decide surgical interference; this, in a consideration of over 250 cases, has been placed by Fitz at not later than the third day. With this doctrine he should agree certainly in those cases where the symptoms were marked and existed with persistent temperature elevation.

He believed that many of the cases that got well either evacuated themselves by the bowels or bladder or underwent absorption, which was not often, or were, what was more likely, cæcitis from fecal impaction and not of a suppurative character. Hence he had seen and learned to expect a ready subsidence of temperature heat after the administration of anodynes. Fitz, who had been just cited, was also firmly of the view of the intraperitoneal origin and seat of these abscesses. Bartholow, writing on the same subject, has taken a similar view. Individually he had never yet regretted operating too early in cases of right iliac inflammatory tumors.

His impression of the site of such abscesses had been formed for many years, he having been led to the investigation by once witnessing the occurrence of a rupture of a perityphlitic abscess into the general peritoneal cavity under very slight palpation of the tumor, with a rapidly fatal issue without surgical interference as the accident took place before the general use of laparotomy. Dr. Weir concluded by reiterating the fact that if a laparotomy was necessitated for an advanced general suppurative peritonitis or even in the rarer cases of acute perforation of the appendix, by lifting out the intestine filling the right iliac fossa, the entire field of ulceration was fully brought into view, and that lesions difficult to detect at a post-mortem examination could be recognized in the living subjects quite readily by changes in color and consistence which were lost in cadaveric alterations.

Stated Meeting, December 22, 1886.

DR. L. A. STIMSON IN THE CHAIR.

DR. ABBE presented the following

NOTES ON THE OPERATIVE CLOSURE OF A LARGE LARYNGEAL FISTULA.

In December, 1885, a man aged forty-five years, presented himself for treatment of an opening in the side of his larynx immediately above the vocal cords, into which the end of one thumb could be thrust. In the month of April preceding, he had tripped while rising from his cobbler's bench with a shoemaker's knife in his hand, and had so stumbled that he fell upon the point of the knife, which was thrust well into the thyroid cartilage of the left side. It was an ugly gash and bled severely. He was carefully treated in the Bridgeport hospital at once, a tracheal tube was inserted and he says was worn a month. The hole in the cartilage was just above the vocal cord attachment and laryngeal inflammation probably followed and impaired his breathing. After another month an operation was performed to close the fistula by suturing, but was ineffectual.

He then came to New York and was subjected to five more attempts at closure by his physician at home. The methods varied: Sometimes silver wire sutures were used, after paring the edges; sometimes, silk. Twice were the harelip pins and figure-of-eight suture used. But after each operation mucus and discharges burst the wound open and left him more desperate than before. The successive parings of skin and cartilage had resulted, with what ulcerations occurred between times, in the sacrifice of a considerable portion of the left lateral half of the thyroid cartilage, the entire gap being nearly three-quarters of an inch, though the opening in the cartilage proper was five-eighths of an inch in diameter. The edges of the fistula were cicatrized and induration extended half an inch from the opening. Through this great gap one could get a most extraordinary view of the vocal cords in action. The anterior ends were attached first within the lower edge of the fistula on the median side, and when at rest the cords fell flat on either side and were lost in the mucous membrane. On attempted phonation they sprung into view and vibrated at an angle of thirty degrees with the horizon—afterward falling back to nearly the horizontal position.

This movement of the cords to assume this angle with the horizon when the patient is erect I do not find noticed in such authors as I have consulted.

Attempts to speak or make audible voice when the fistula was uncovered were futile. The voice being produced in the mouth and pharynx by the utilizing of sound of vibrating cords, it was vain for him to try to phonate when all the sound escaped from the side of the larynx. All he could do was to produce a fizzing or buzzing note like the sound one might make by blowing through a single reed of a reed organ. When, however, a flat pad covered the fistula completely, he could phonate perfectly though with a slightly husky tone.

I decided that by the following not very complicated plastic operation I could close the fistula, if I did preliminary tracheotomy to prevent expulsive efforts at coughing from mucus and air passing through the sutures.

Nov. 13, 1885, assisted by Dr. Bangs, the patient was etherized and tracheotomy done at the two upper rings. When the patient breathed well through the tube the glottis was stopped through the fistula with a sponge attached to a string drawn out through the mouth. The edges of the fistula were thoroughly pared. A broad elliptical space was then included between two incisions, *a*, *b*, being somewhat wider than the fistula and extending obliquely downward on the

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patient's neck. A part of the included skin below the fistula was dissected up so as to make a flap on its upper edge, which, when turned over, more than covered the hole. The cuticle was then denuded from the part of this surface not wanted to cover the hole; and the rest of the elliptical space made raw for the reception of the overturned flap. The latter was then stitched over the fistula by two rows of fine continuous catgut; one row on the edge of the orifice tacking the surface of the flap at the circle of denudation, and the second on the outer edge of the flap fastening it to the outlying tissue.

The skin on either side of the neck was then undermined and slid over the flap mentioned, so as to meet directly over its centre. A lateral slash, 1¼ inches away, was necessary to relieve tension and served to admit a drainage tube.

Antiseptic compresses were applied and the sponge removed from the larynx by the mouth. The patient made a very comfortable recovery with primary reunion throughout. The tracheal tube was removed on the fifth day, and he was allowed to talk at the end of a week. He left the hospital with a perfectly solid larynx—and excellent phonation, which has been maintained.

DR. Abbe remarked that it seemed to be the general impression that this class of cases could not be cured.

THE PRESIDENT asked to what cause this supposed impossibility is attached; whether it is simply a mechanical one.

DR. ABBE thought it was owing to the air in respiration which broke down the union.

NEWS ITEMS.

A DECISION FAVORABLE TO MRS. PAVY.—All the friends of the late Dr. Pavy will be glad to hear that the Secretary of the Interior has reversed the decision of Commissioner Black on the claim of Lela Pavy, widow of Dr. Octave Pavy, late acting Assistant Surgeon, U. S. A., under contract with the Greely expedition, who died of starvation at Cape Sabine, about June 6, 1884. She is granted $17 per month. The Secretary holds that though Dr. Pavy's contract had expired he was still in the service.

A CERTIFICATE OF DISABILITY, issued by Dr. A. Y. P. Garnett to a government employee, was returned by a United States pension officer, with the demand that the doctor should strengthen it with implicit information. Dr. Garnett declined to furnish this information, on the ground that it would involve the violation of professional obligations. In this decision he has been sustained by Secretary Lamar, who has thus established a precedent which petty courts and government officers will not presume in future to set aside.

PROF. CHEVREUL, the chemist, is about to resign his public offices and retire to Dijon to live with his family.

THE CHOLERA.—Ever since cholera first made its appearance at Toulon in June, 1884, it has, like a spectre, been hovering over Southern Europe. Fortunately, but for no well-defined reason, it has not extended to Northern Europe, although for three seasons it has been threatening to do so. In a recent number of the *Journal* (October 23d, page 772), we gave a summary of the havoc which cholera wrought in 1884 and 1885; and from that summary it may have been observed that the disease, once started at Toulon and Marseilles, seemed to radiate northward to Paris, and eastward throughout the Italian Peninsula; whilst Spain, to the southwest, was soon afterward invaded and terribly scourged. During the year just ended, however, the disease seems to have somewhat changed its point of attack, and has centred more particularly in the western and northern shores of the Adriatic, whence it spread north-eastward through Carniola and Croatia, to Agram, Raab, Pesth, and Szegedin; and south-eastward to Priedor and Novi in Bosnia, Belgrade in Servia, and even Tirnova in Bulgaria.

Cholera in Italy.—During December, 1885, sporadic cases were reported from Venice. This prevalence continued until the end of April last, by which time 116 cases and 80 deaths had occurred in the city since the beginning of the year. Early in May a sudden and rapid increase took place in the number of cases, and in the first week of June as many as 218 cases and 132 deaths were reported. The disease continued in Venice, with decreasing severity, until October, when the city was declared to be practically free from it. Altogether, not less than 1000 cases, with about 620 deaths, have occurred in the city during the past year. It may here be noted that in some quarters it was asserted that the Venetian disease was not true Asiatic cholera, whilst others describe it as "choleraic typhus." Meanwhile, however, an epidemic of undoubted Asiatic cholera was rapidly spreading in the south-eastern provinces of Italy. The disease broke out early in April at Brindisi, which is situated in a flat unhealthy locality, and by the 15th of that month 72 cases, of which 15 were fatal, had occurred in the town. From Brindisi it spread rapidly to the adjoining towns of Latiano, Francavilla, Fontana, Lecce, Bari, Barletta, etc., creating panic in the neighborhood, and anxiety in the whole country. The sanitary arrangements of these places seem to be bad in the extreme, and, at Latiano especially, the polluted wells are charged with having been mainly instrumental in spreading the disease. During the summer the towns of Chioggio, Treviso, Padua, Ferrara, Ravenna, and others in the valley of the Po, and in the neighborhood of Venice, suffered somewhat severely from choleraic sickness. A few cases occurred at Torre Annunciata, near Naples, early in September, and at Rome in October. In September, Sardinia was invaded, but, although the disease was virulent in character, it does not seem to have diffused itself widely in the island. In the middle of October, cases were reported from Genoa, and further cases followed during November; but no cases appear to have occurred in the town, or, indeed, in the whole peninsula, since the 27th of the last mentioned month. It is estimated that up to the middle of October, when cholera as an epidemic may be said to have come to an end in Italy, 21,000 cases and 8650 deaths had occurred throughout the peninsula. Some towns of Italy seem to have profited by their past experiences of cholera, and by the teachings of the Roman Sanitary Conference of last year. In Rome itself nearly all the wells have been filled up, and a wholesome supply of water provided, much to the benefit of the public health. Naples also seems to be improving its hygienic conditions. But at Florence, where it is as-

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serted that the well-waters are very generally grossly polluted, and that cesspools of the worst sort prevail, there seems still to be great reluctance to effect the needed sanitary improvements.

Cholera in Austria-Hungary.—In December, 1885, occasional cases of cholera were occurring in Trieste, a town of about 135,000 inhabitants, situated at the extreme north of the Adriatic Sea, and of special importance as constituting the centre of Austrian foreign commerce. The disease died out in this town about Christmas, 1885, but broke out again on June 7th last, and from this centre rapidly spread through Fiume, Istria, Carniola, Gorizia-Gradisca, Croatia, and Dalmatia, and into Bosnia and Servia. It is officially reported that, up to the middle of November, when the virulence of the epidemic may be said to have passed, about 900 cases, and 550 deaths, occurred in Trieste alone, and that in the province of Istria 672 cases, and 374 deaths, had occurred. Bad hygienic conditions prevail in all these districts. In some places the populace are reported to have been guilty of acts of barbarism, such as were common last year in Spain. They accused the local doctors of poisoning them, and in some cases actually resorted to violence. On September 12th cholera broke out in Pesth, where its advent had for some time been dreaded. It rapidly spread, owing to the execrable sanitary arrangements of the town, and before it died out, about November 20th, more than 1200 cases, and 500 deaths, had occurred. Very severe censures were passed on the unpreparedness of the town to resist the cholera. The water-supply was described as being at all times indifferent in quality and inadequate in quantity, and it was said that over 30,000 of the inhabitants—a tenth of the total population—lived in damp underground rooms, where ventilation, a proper supply of water, and cleanliness were impossible. The town of Raab, which is situated on a tributary of the Danube, and half-way between Pesth and Vienna, and Szegedin, which is about 100 miles south-east of Pesth, suffered to some extent at the same time as the Hungarian capital. As in the case of Venice, some doubts have been expressed as to whether all the cases at Trieste returned as "cholera" were cases of the true Asiatic disease, and it has been noticed as a significant fact that during the summer no cases of diarrhœa or dysentery were recorded in Trieste, although those diseases are usually common there.

Cholera in Spain.—Spain has suffered comparatively little this year from cholera. In January the disease was still lingering in Malaga and Algeciras, where it had caused such great mortality during the previous summer; and during the first three months of the year a considerable number of cases occurred at Tarifa, not far from Gibraltar. But the disease seems then to have disappeared from Spain until October, when a fresh crop of doubtful cases was reported from Malaga.

Cholera in France.—France also has had but little cholera this year, but the little it has had, occurring as it did in the Department of Finistère, close to our own shores, has had especial interest for England. No cases, so far as is known, have occurred in Finistère since May last; but during the first four months of the year the disease undoubtedly prevailed to an appreciable extent at Brest, Concarneau, Douarnenez, Audierne, and other places in that locality.

Cholera in Japan and the Corea.—Whilst we have been watching the progress of cholera nearer home, the disease seems to have been ravaging the greater part of the Corea, and to have caused great mortality in Japan. Exact statistics are not yet obtainable, but it is reported that in Japan not less than 50,000 persons have been attacked, and 35,000 have died; whilst in Corea the population has been decimated.

Cholera in India.—India, the home of cholera, is never free from the disease; but during the past year there does not seem to have been any exceptional prevalence—at least in the three principal towns. As regards Calcutta, the fortnightly official returns during the first ten months of the year showed, as a rule, a mortality under the average of the previous five years; but since October 25th there has been a rapid and considerable increase in the cholera mortality in that city. From January 1st to December 8th, altogether 1553 deaths from cholera had occurred in Calcutta, as compared with 1836, the mean for the same period of the preceding quinquennium. In Bombay, during the same period, only 15 deaths occurred, as compared with 510, the mean of the same period of the previous five years. No deaths seem to have been recorded in Bombay during the months of July and August, and none since September 29th. In Madras, no death had been recorded since February 13th last.—*British Medical Journal*, December 25, 1886.

MEDICO-LEGAL QUESTIONS IN RELATION TO THE LAW OF DIVORCE.—The medical witnesses in the Colin-Campbell case, which has unfortunately occupied so much of the public attention, have been subjected to much and severe animadversion by counsel on grounds which appear to be entirely without foundation. The medico-legal aspects of the case raised some new questions of considerable importance, and the decisions in this and the previous trial establish conclusions not previously arrived at in any case hitherto tried.

The medical evidence was given throughout on both sides with great judgment and scrupulous accuracy, and appears to leave no room for cavil. From the facts stated in evidence, it appears that the husband had been operated on, both before and after marriage, for perineo-urethral fistula, due to gonorrhœa contracted in earlier life. In consequence of the condition of the husband, marriage was not consummated until four months after the ceremony. A fortnight after this consummation the wife suffered from a persistent vaginal discharge. She subsequently suffered from an attack of cellulitis. After she had recovered from this, the husband proposed to resume cohabitation; the wife refused, and ultimately appealed to the Court for protection. The trial took place in 1884, before Sir James Hannen, who, having heard the evidence of all concerned and numerous skilled witnesses, considered that she should be protected; the jury agreeing to that view, he gave judgment accordingly. This was appealed against, but the upper Court confirmed the judgment. This judgment was novel and important; it established this point, that the result of a former specific attack continuing, and being liable to injure the wife, would entitle her to a judicial separation. And it may, perhaps, be assumed that the same rule would hold good for both sexes. It appears that the judge did not

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require, in order to establish "cruelty," that there should be a recent specific infection. In this case, the surgeons called considered that pus would run along the urethra in cohabitation, and this they held would be fraught with danger; this view is in accordance with all modern teaching. Gynecologists recognize that serious inflammatory attacks, and irritations of the genital tract are liable to follow cohabitation with those who have had gonorrhœa, although all specific conditions have disappeared. This judgment is far-reaching, but was, during the second trial, held to be a good one, which could not be disturbed. The question naturally arises, What length of time elapses before a specific attack (gonorrhœa) can wear itself out? This question did not affect the judgment above mentioned; but it is of much practical interest, and, in view of this judgment, important.

In the second trial, attempts were made to reopen the case, but these were checked by the judge. Another theory was, however, put forward as a possible explanation of the cellulitis; this was a suggested miscarriage shortly before the inflammatory attack. The consultant, however, who saw the case seven days after this was alleged to have taken place, not only did not find the slightest evidence of miscarriage, but, on the contrary, found the os and cervix in accordance with the nulliparous state. Later on in the case, in dilating the cervix, it was ascertained to have the characters of congenital stenosis. The evidence on the other side was largely based on the suspicions of a nurse who *thought*, from the occurrence of severe pain and a free hemorrhagic discharge, that a miscarriage had occurred—a suggestion negatived by the medical evidence and easily rejected by both judge and jury. Every medical man is aware that cellulitis is very frequently associated with severe pain and free discharge, and the freer the discharge the less the internal swelling, this being nature's mode of relief. This and other phases of the case emphasize anew the risks which beset practitioners in their daily work, and the necessity for the strictest observance of professional discretion in their relations to patients of whatever position in life.—*British Medical Journal*, December 25, 1886.

THE MONTEFIORE HOME FOR CHRONIC INVALIDS took in last month close upon $180,000 at its fair in the N. Y. Central Park Garden in two weeks.

THE LIBRARY OF THE LATE FRANK HASTINGS HAMILTON, M.D., LL.D., has been sold to Dr. John B. Hamilton, Supervising-Surgeon-General U. S. Marine Hospital Service, Washington, D. C. The specimens have been purchased by the U. S. Army Medical Museum. The original specimens, of which illustrations are given in the doctor's world-renowned and classical work *On Fractures and Dislocations*, are to be found in this collection. The instruments were sold at private sale.

NOTES AND QUERIES.

A SOURCE OF WELL WATER POLLUTION.

AFTER a severe thaw in March, 1885, my attention was called to a suspicious drinking water. I found that the well from which the water was obtained was situated near a barn. There were heavy falls of snow during that winter, and many times the snow was not removed from the curb. Horses were watered from this well. In his journeys back and forth from the stable, the hired man did not properly clean his boots of manure, etc.; hence the snow on the curb and adjacent ground was polluted. In consequence of the thaw the polluted snow and ice, as it melted, percolated through the cracks in the wooden curb. The water of the well was examined, with the following result:

Color, yellow; taste, good; turbidity, marked; odor, ammoniacal.

Quantitative parts per 100,000.

Suspended solids	1.000
Volatile matters after incineration and recarbonating	9.500
Sodium chloride	5.445
Magnesia	0.627
Calcium carbonate	9.140
Sodium sulphate	2.748
Silica	1.540
Total solids upon evaporation	30.000

The solids, upon incineration, turned intensely black. From lack of time, "free and albuminoid ammonia" were not ascertained. The water was condemned on the authority of Parkes, who says, "Of the solids, not more than about one grain per gallon (1.04 per 100,000) ought to be volatile, or capable of being driven off by a red heat The solids should blacken very slightly on ignition."

Careful investigation has convinced me that the danger of contamination from the above mentioned source cannot be overestimated. I have repeatedly witnessed accumulations of polluted snow around wells. The necessity of keeping well curbs free from such filthy accumulations would seem to be self-evident.

CHARLES E. FAIRMAN, M.D.

LYNDONVILLE, NEW YORK.

GENERAL FARADIZATION AND CENTRAL GALVANIZATION.

To the Editor of THE MEDICAL NEWS,

SIR: In a lecture by Dr. Bartholow, in your issue of December 18th, on "Electro-therapeutics," I notice errors of statement which are, it seems to me, deserving of correction. He says, I doubt not with all honesty of intention, that "general faradization first proposed by Dr. Beard;" and further on, "Central galvanization, which we also owe to Beard," etc. Dr. Beard is dead, it is true, and cannot speak for himself, but he was my friend, and I should be the last to detract in any way from the credit due him. I recognize the fact that Dr. Bartholow's lecture was probably given in an off hand clinical manner, and could not therefore be expected to abound in that accuracy of statement in small matters that we look for in written productions; but he will agree with me that whatever is worth saying at all is worth saying with exactness, and will pardon this note of correction. Central galvanization is perhaps due to one no more than to the other; our book certainly gives credit to neither over the other. As regards general faradization, however, the first formal presentation of it appeared in an article of mine published in the *Medical Record* in 1866, and in our work on the *Medical and Surgical Uses of Electricity*. The idea of the constitutional tonic effects of electricity and the method of general faradization by which these effects are obtained are distinctly attributed to me, and with Dr. Beard's full knowledge and accord. Yours respectfully,

A. D. ROCKWELL, M.D.

NEW YORK.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 4 TO JANUARY 10, 1887.

CORSON, J. K., *Captain and Assistant Surgeon.*—Ordered to Fort Cœur d'Alene, Indian Territory.—*S. O. 227, Department of Colorado*, Dec. 31, 1886.

MUNN, C. E., *Captain and Assistant Surgeon.*—Ordered to Fort Canby, Wyoming Territory.—*S. O. 227, Department of Colorado*, Dec. 31, 1886.

BANISTER, J. M., *First Lieutenant and Assistant Surgeon.*—Ordered to Fort Cœur d'Alene, Indian Territory.—*S. O. 227, Department of Colorado*, Dec. 31, 1886.

IVES, F. J., *First Lieutenant and Assistant Surgeon.*—Granted one month's leave of absence, with permission to apply for twenty-three days extension.—*S. O. 1, Department of the Platte*, Jan. 3, 1887.

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THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

ON THE USE AND ABUSE OF PASSIVE MOTION.[1]

BY HENRY B. SANDS, M.D.,

SURGEON TO THE ROOSEVELT HOSPITAL, NEW YORK.

I AM induced to bring before the Society for discussion the well-worn, but important, subject of passive motion, in the hope of putting it, if possible, on a broader and more scientific basis. So many claims are made in its favor which seem to me to be unfounded, that I think it desirable to state just what amount of good may be expected from it and in what class of cases the method is unsuitable. I approach the subject with some hesitation because I am apprehensive that my opinion will encounter opposition. I shall present, however, little more than the results of my own experience, and I entertain some views which I should be glad to alter provided I could find other ones supported by credible testimony.

The phrase passive motion may appear to be somewhat ambiguous, as the word passive implies merely that the patient either offers no resistance to manipulation, or that the resistance offered is overcome. On the other hand, the movements made by the surgeon are always active and sometimes very forcible. A degree of severity, therefore, may belong to the procedure, which the term is not adapted to convey.

Concerning the common form of injury known as a sprain, which most often occurs at the ankle, it may be remarked that various lesions are doubtless included under this designation. In slight cases the ligaments are, perhaps, only severely stretched; in bad ones they may be more or less completely torn. Subcutaneous extravasation of blood is usual, and occasionally hemorrhage takes place into the adjacent joints and tendinous sheaths. In a few cases the parts continue weak and painful for a considerable, or, it may be, an indefinite period of time; while, in a still smaller number, the foundation is laid of serious organic disease.

In no form of injury do wider diversities of opinion exist regarding treatment than in that called sprain. The old-fashioned treatment, which prescribes rest and fixation of the sprained joint, is preferred by some; while wonderfully good results are declared by others to proceed from the early employment of massage combined with passive motion and the almost immediate use of the injured parts. As in many other instances, the truth here probably lies between the extremes. My own practice has generally been conservative. Unless the injury is of trifling degree, rest and immobility would seem to be instinctively, if not imperatively, demanded. By rest and immobilization an opportunity is afforded for a reunion of the ruptured parts, while the pressure of the bandage favors the diffusion and absorption of blood, serum, and other extravasated fluids. When it may be reasonably presumed that the injury has been repaired, usually after the lapse of from one week to two weeks, passive motion has seemed to me to be useful by preventing or removing stiffness or pain. Aside from tuberculous disease of the joint, which may undoubtedly arise in consequence of this form of injury, I have often known the use of a badly sprained ankle to be followed by long-continued lameness and pain. I, therefore, am inclined to be cautious and to enjoin rest for perhaps an unnecessary period rather than to recommend motion which might be premature. Massage and passive motion I have found most serviceable in recent sprains of mild degree, and in cases of stiffness resulting from old adhesions or prolonged disuse. In such instances I have witnessed excellent effects from these remedies, but I am disposed to look with distrust upon active treatment applied to recent strains at all severe. I have been reminded by Dr. Wm. G. LeBoutillier, lately my House Surgeon in the Roosevelt Hospital, that a favorite method there, when the sprain is not severe, consists in the immersion of the injured foot for several hours in hot water, and the subsequent application of a firm bandage. Under this treatment many patients are enabled to leave the hospital, walking tolerably well at the end of three days.

After the reduction of dislocation I have rarely found it necessary to employ passive motion. I have usually kept the injured parts quiet by means of a sling or a bandage for a period varying from a week to a fortnight, and have then encouraged the patients to resume the normal movements. In a few instances, after reducing dislocation of the shoulder, I have been obliged to use considerable force, in order to break up adhesions which had formed outside the articulation, in consequence of inflammation caused by the primary injury.

Experienced surgeons are divided in opinion regarding what mode of treating fractures is least likely to be followed by stiffness. Fermentil maintains that immobilization never induces ankylosis, but tends to prevent it by averting inflammation. Other surgeons are so apprehensive of causing, by immobilization, a loss of movement that they recommend almost entirely the use of splints, and practise very early passive motion. Both parties claim that they have obtained good results; and without pretending to be dogmatic, I desire to state my own views as founded on personal observation.

In the first place, cases of true ankylosis of the kind I can recall are those in which comminution had

[1] Read before the New York Surgical Society, Dec. 27, 1886.

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taken place of the bones composing the ankle- or the elbow-joint, which had become fused during the process of repair. Provided a fracture is simple comminuted, however extensive, it is not very likely to be followed by ankylosis, and, at the present day, with suitable antiseptic treatment, such a result should be infrequent even when joint fractures are compound.

But if true ankylosis after fracture is rare, stiffness from false ankylosis is less uncommon, and, if incurable, may greatly diminish the usefulness of a limb. Its nature and causes are various. Undoubtedly it may occur in joints from simple disuse. I remember an example of the kind which I met with many years since, while I was serving an apprenticeship in the Bellevue Hospital. A woman broke her left femur at about its middle three times in the course of eight months. During the whole of this period she was kept in bed with the limb maintained in a straight position by means of a weight attached to the foot. Meanwhile the knee, which was remote from the seat of fracture, became so rigid that, even with the aid of an anæsthetic, only the slightest motion was possible. She was dismissed with a stiff joint.

That organic changes occur in such cases cannot be questioned. Shortening and rigidity of the capsule have been conjectured to exist, while distinct pathological conditions have been described by Bonnet[1] and Toussaint,[2] who found, on post-mortem examination, or on inspecting limbs which had been removed by amputation, effusion of blood within the affected joint, undue redness of the synovial membrane, newly formed connective tissue uniting opposed articular surfaces, and swelling, erosion, and adhesion of the articular cartilages. Moreover, Menzel[3] has shown by experiment that in animals, swellings, hyperæmia, and pterygium-like affections of the synovial membrane, and degenerative changes in the articular cartilages often take place in consequence of the enforced rest of a joint. Examples of the kind referred to may be seen or may have been met with by every surgeon present, but they are seldom grave enough to cause serious apprehension. Furthermore, they are rare. As a rule, I have not observed that long-continued immobilization of a healthy joint gives rise to any stiffness which cannot be quickly overcome, either by passive motion or by the unaided efforts of the patient The early retention of the natural movements and the absence of a sharp inflammatory reaction when those are removed, prove that no important lesions have occurred. Nevertheless, the occasional sequel of obstinate stiffness suggests the propriety of watchful examination and the avoidance, by timely passive motion, whenever necessary, of the injurious consequences that might otherwise ensue.

False ankylosis after fractures is usually dreaded when the fracture complicates a joint, or when it is situated very near to one. But I am satisfied that the danger in such cases has been greatly exaggerated, and that the stiffness, when it occurs, is often erroneously ascribed to the presence of morbid adhesions. In many examples of fracture at the elbow or at the ankle, the subsequent limitation of motion can be traced to some bony displacement which happened at the time of the injury, and which was not accurately reduced. Or, as we have all noticed, the displacement may recur even after reduction has been accurately effected. Again, in some instances, a bony callus may impede motion by projecting into the interior of a joint. Impediments of the kind referred to are often discovered only at a period after the swelling of the soft parts has subsided. The ankylosis in the first two mentioned sets of cases does not depend on the formation of adhesions, but on a faulty position of one or more of the bony fragments. It cannot be attributed to the long-continued wearing of splints, except so far as they may hide from view the existence of the impediment, and lead the surgeon to believe that things are right, whereas they are wrong. Whenever any such uncertainty is met with, therefore, I am in the habit of frequently examining the injured parts, and of resorting, if necessary, to such manual force as will restore the fragments to their proper positions. Here passive motion will often be expedient, both as a test and a remedy; but it is not practised with the intention of rupturing abnormal adhesions. At a later period, when consolidation has taken place, and motion is prevented by bony prominence, the ankylosis must be overcome, if at all, by some form of cutting operation. Passive motion, although often tried in these circumstances, would be obviously improper.

Adhesive inflammation, mainly periarticular, I believe to be the chief agent in producing the stiffness due to false ankylosis following fractures. Fortunately, this affection rarely occurs to any troublesome extent when fractures are judiciously managed, and the broken bones are held in position by splints which do not exercise undue pressure. Accordingly, much stiffness of a joint seldom follows the usual treatment of fracture, which involves keeping the parts immobilized for three or four weeks.

Even after the patella has been fractured, and the knee has been confined in a straight position for a period of eight weeks, the joint is sometimes supple almost immediately after the splints are removed; and, without artificial assistance, will allow full flexion after the lapse of several months. Believing that adhesive inflammation is rarely severe after fractures in the neighborhood of joints, or extending into them, I have not feared the occurrence of ankylosis, but have generally avoided making movements before the consolidation of the fraction. So far as my experience goes, I have never had occasion to regret having followed this practice, and have never known ankylosis to result from it. Early motion, in my opinion, is very apt to be premature, and to cause the very stiffness it is intended to prevent. The case is different, however, when inflammation, denoted by pain, swelling, and œdema, has actually set in. It may be argued that at this period the plastic material is soft, and that, by passive motion, the formation of adhesions, and the consequent stiffness, may be avoided. But even here my practice has nearly always been mild and conservative. By

[1] Traites des malades des articulations. A. Bonnet, Paris, 1855.
[2] Gazette médicale de Paris, 1841, pp. 609 and 625.
[3] Archiv für Chirurgie, Bd. x (11-y), S. 990.

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removing pressure, by keeping the injured parts at rest, and by making cold external applications, I have sought to control the existing inflammation and to limit the amount of fibrinous exudation. To anticipate one evil of the effect of ankylosis, however, I have in these cases been careful to place the joint, if possible, in such a position as will render the limb more serviceable in the event of subsequent stiffness. Passive motion I have seldom practised under these conditions, because it has appeared to me that it might do harm. Indeed, while the parts are swollen and tender, motion is difficult and painful, and if perseveringly made, is liable, according to my experience, to cause an aggravation of all the unpleasant symptoms. On this point, however, I desire to speak with some reserve, because I have very little actual knowledge concerning the effect of passive motion practised under the circumstances described. I have found it to be extremely painful, and I have suspected it to be mischievous. This is all I am willing to say. After operation for correction of the deformity caused by Dupuytren's contraction of the fingers, and after plastic operations on the hand, I have usually resorted to passive motion within a week, and have thought that stiffness was thereby prevented. Now a similar rule may apply to fractures, when threatened with ankylosis; but I have not had any experience which would convince me that such is the fact.

In common with many other surgeons, probably, I have met with stiffness most often after fractures of the lower end of the radius. I have seldom seen it except in persons who had passed the middle period of life, and I have never known it not to be preceded by signs of inflammation, which I believed to be adhesive in character, and to involve especially the sheaths of the tendons in the neighborhood of the wrist. Certainly the stiffness which occasionally follows is due rather to adhesion of the tendons than to any affection of the joints. The liability to this unfortunate occurrence has led some eminent surgeons to discard altogether the use of splints in the treatment of these fractures, and to seek to prevent stiffness by an early resort to massage and to active and passive motion. I am not prepared to condemn such treatment entirely, or to deny that it may sometimes be expedient. But I am unwilling to believe that it is usually either necessary or safe. Some of the worst results I have witnessed have followed a neglect to fulfil the ordinary indication to reduce the displacement, and to maintain the reduction by the application of suitable splints. Not only deformity, but also loss of motion, may follow such neglect, and I am sure that a proper reduction of the fragments will go far toward preventing the occurrence of inflammation, on which the stiffness ultimately depends. It can be conclusively shown that immobilization of the injured parts may be usually enforced for a long time without giving rise to ankylosis. At the Roosevelt Hospital, where many fractures of the lower end of the radius are treated, the plan adopted is to reduce the displacement at once as far as possible, and to apply two straight wooden splints, which extend along the forearm and the hand, but not so far as to impede the movement of the fingers. These splints are occasionally removed for the purpose of examining the parts, which are otherwise allowed to remain undisturbed for a period of four weeks. The splints are then dispensed with, when the bones are found to be firmly united, the freedom of motion being only slightly impaired. The results they obtain are excellent, and the normal movements are soon regained.[1] Two hundred and twenty-seven cases have been treated according to this method during the past three years, and only one case has terminated in permanent stiffness.[2] It may be fairly claimed, therefore, that, as a rule, these fractures can be successfully treated without resorting to early passive motion. Moreover, the fact that such fractures commonly get well without stiffness, when the surgeon early begins passive motion proves nothing in favor of it, because they might have recovered equally soon if this had been omitted. But we must admit that stiffness now and then occurs; and the problem to be solved is how this can be obviated. I frankly confess that I am unable to offer, under all circumstances, a sure remedy. When the patient is old and rheumatic, the injury severe, and the inflammation active, I believe that stiffness may follow, whatever plan of treatment is pursued. I should be careful in such a case to remove all pressure of splint which might increase the existing inflammation, and to combat the latter by rest, elevation of the limb, and by making cold applications to the tender and swollen parts. Passive motion I should defer until the acute stage had subsided. An early resort to the latter method while active inflammation is in progress, I have never dared to prescribe, fearing that it might cause harm. If I could be convinced from the experience of my colleagues that such a practice is beneficial, instead of injurious, I should be glad to change my present opinion, and to renounce the plan of treatment which I have found generally, if not uniformly, successful.

I can speak much more positively and favorably respecting the efficiency of passive motion in promoting convalescence after fractures, by removing what are called their residua, namely, swelling, stiffness, and pain in attempting movement. Often, it is true, these symptoms are not very marked, and will disappear entirely if the patient is encouraged to use the limb. But, when they are decided and persistent, and when the natural movements are shunned on account of pain, indolence, or timidity, the value of massage and passive motion is unquestionable. When practised daily, or every second day, such treatment will frequently cause rapid improvement, by rendering the circulation in swollen parts more active, by dissipating the swelling, which is usually due to passive œdema, and by making motion easy and painless. As every surgeon knows, patients who have suffered from fractured limbs are often reluctant to use them, even after the bones are firmly

[1] I am indebted for the statistics to Dr. C. H. Huntington.

[2] The patient referred to was a man who was treated in the usual manner, soon after the accident. He remained away from the hospital, contrary to instructions, for a period of three weeks; when he returned his wrist was found to be stiff. No further particulars are contained in the report.

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united, and it is in this class of cases that friction and passive motion are so valuable. Not infrequently, indeed, physicians, as well as patients, are deceived by the idea that the symptoms are indicative of inflammation, which requires rest; and for this reason patients are sometimes disabled for a long period, and possibly treated for rheumatism or for some other disease which does not exist. A few active manipulations will reveal the error in diagnosis, and not seldom accomplish a cure. The sudden disappearance of pain on motion which is occasionally noticed in these cases, can hardly be otherwise explained than by supposing that abnormal bands or adhesions have been forcibly ruptured. Whatever be the rationale of the treatment referred to, there can be no doubt that it is eminently successful.

In a small number of cases of stiff joints following injury, or dependent upon long fixation of a limb, I have derived great advantage from the employment of an anæsthetic. The absence of pain and of muscular contraction thereby induced, facilitates the necessary movements, and occasionally affords valuable aid in diagnosis. As a rule, however, anæsthetics may be dispensed with, and, furthermore, repeated movements are commonly needed to obtain the desired result.

I possess no personal knowledge of cases of slipping or adhesion of tendons, or of mysterious or unexplained lesions which, having resisted the ordinary means of treatment, have been brought to speedy recovery by the rough handling of bone-setters, and I believe that most of the statements made regarding their achievements are, to use a mild term, *inaccurate*. I am incredulous and suspicious of all marvellous cures, whether claimed to have been wrought by the bone-setters, or by members of the medical profession.

I have met with little or no success when applying passive motion for the purpose of overcoming the firm contractions of the skin and deeper tissues which follow burns and other injuries accompanied with much loss of substance. The limit of stretching of which scars are capable by passive motion is soon reached, and further attempts to extend them are quite liable to cause rupture.

The value of passive motion as a means of overcoming ankylosis due to disease not caused directly by injury is a subject which admits, perhaps, of but little discussion. But there are some facts relating to it which should be distinctly stated, and there are some errors prevalent which should, I think, be corrected. Among the severer affections of the kind referred to, I have found most amenable to treatment cases of stiffness of the shoulders, apparently unconnected with disease of the joint, but dependent upon the pressure of adhesions in the large bones situated beneath the deltoid muscle. This disease, which has been well described by Duplay, has many features resembling those due to arthritis, from which, however, it is not hard to distinguish. But the movement of the arm at the shoulder-joint may be limited and painful, and the usefulness of the limb nearly lost. I have encountered many such cases, and have invariably succeeded in affording relief by the employment of passive motion. This I have always practised after administering an anæsthetic, and I have sometimes been compelled to resort to considerable force in order to overcome the resistance. The adhesions, wherever situated, usually give way with an audible sound, and the freedom and extent of motion are completely, but sometimes only temporarily restored. By the subsequent use of passive and of voluntary motion and by repeating the manipulations while the patient is under ether if necessary, I have seldom failed to obtain a complete and permanent cure.

Unfortunately, I am unable to record equally good results from the treatment by passive motion of any other form of ankylosis, if I except certain cases of hysterical muscular contraction, which may be dismissed with this bare allusion. Most often I have had occasion to employ passive motion with the simple, but unfortunate, result of putting the diseased limb in a suitable position. Even before such an attempt is made, however, discrimination and caution are sometimes necessary. Probably most surgeons would agree that when true bony ankylosis exists, passive motion should not be made to correct the deformity, which should be dealt with, when necessary, by the use of the knife and the saw. Passive motion may also fail to alter the position which a limb has assumed in the course of tubercular arthritis of long standing. When, in old hip disease, the thigh has become much flexed and adducted, forcible motion, intended to secure a straight position, is at least a doubtful expedient. It will probably turn out to be unsuccessful, because the soft parts will be found so contracted and rigid that nothing short of actual violence will cause them to yield enough to permit a correction of the deformity, which, moreover, may be further maintained by bony alterations, impossible to anticipate or overcome. Again, the employment of much force, in such circumstances, has often been known to set up severe inflammation with even fatal consequences. Excision, therefore, although apparently a harsher remedy, would seem to be preferable, as involving less danger, and obtaining a better and more definite result. Similar remarks may be made respecting the knee, when, in consequence of old joint disease, the leg may become flexed and rotated outward, the head of the tibia partly dislocated backward, and the soft parts behind the joint contracted, any attempt to straighten the limb by passive motion, even when preceded by tenotomy of the hamstrings, will be futile, and the end in view will be gained only after a formal incision has been performod. But in the early stage of arthritis, whether tubercular, gonorrhœal, rheumatic, or of other origin, a bad position can always be safely corrected by manual force, aided by an anæsthetic, when necessary, and thereby, in the event of ankylosis, one of its most disastrous consequences can be prevented.

For the purpose of restoring movements which have been impaired or lost from the occurrence of firm false ankylosis of the joint from whatever cause, or for the removal of stiffness dependent on the firm adhesion of tendons to their synovial sheath, my results, after many trials of passive motion, have been

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so discouraging that I can seldom advise this mode of treatment as a means of cure. As, however, the exact amount of resistance to be overcome, and the exact pathological condition cannot be settled beforehand, I almost invariably, when consulted in cases of the kind referred to, advise the administration of ether, and the trial of a fair amount of forcible manipulation. But if the adhesions are numerous and firm, and great force is required to establish mobility, I have found that even when the movement becomes very free and extensive, at the time of operation, they are lost again almost immediately afterward, the stiffness returning, and being as bad as before. It is often said that, in these cases, failure is due to a neglect, on the part of the surgeon, to maintain the advantage already gained by the continued practice of passive motion. But I am convinced that the assertion is untrue. So much pain, swelling, ecchymosis follow the first attempts to move the stiffened parts, that for a day or two afterward they must be allowed to rest; and when inflammation has abated sufficiently to warrant a repetition of passive motion, the whole thing has to be done over again, and with the same result. My experience with this method in such cases has been so uniform, that I cannot doubt the correctness of the opinion I have expressed. I recall an instance in which a man, who once consulted me, was treated in the manner I have described; and although at the time of the operation the leg, which was at first extended, could be well flexed, the stiffness soon returned, and was as marked as ever. I kept the man's leg extended during his convalescence, and then advised him to let it alone. But he fell into the hands of an enterprising and enthusiastic surgeon, who promised to cure him, and who afterward boasted that he had done so. I finally caused an inquiry to be made about the patient, and ascertained that the joint had soon become again immovable.

To sum up what I have said, I am not an advocate of passive motion, except under the restrictions which I have endeavored to define. I believe that when practised without discrimination, it will often be unsuccessful, and sometimes injurious, by inducing an increased inflammation. I am certain that the severe forms of ankylosis and of fixation of tendon are frequently due to this disease, and that the inflammation will be aggravated by employing passive motion before the active symptoms have disappeared. The idea that motion will always prevent ankylosis is a fallacy which is contradicted by common experience. I have performed the operation of incision of the elbow for the cure of true ankylosis, and I have seen operations performed by others, during which, perhaps, too little bone was taken away; and, in spite of the early and diligent use of passive motion, the stiffness has returned, bony consolidation has recurred, and the operation of excision has had to be repeated. But motion may be successfully employed as a means of causing a bony deposit to take place. It is a well-known fact that, in many instances of ununited fractures of the thigh or of the leg, bony union may be determined by the inflammation which is got up by making forcible motion of the fragments, or by causing the patient to walk about upon the injured limb, with the view of pressing them against each other. On the other hand, by operating according to modern antiseptic methods, which tend to prevent inflammation, partial incision of even so intricate a joint as the elbow may sometimes be performed without any impairment of mobility. I have brought the subject of passive motion to the attention of the Society because it is one of great practical importance, about which surgeons are frequently consulted, and about which there may be honest difference of opinion; but, as I mentioned in the beginning, I should be glad to change some of my present views, if others could be advanced which are sustained by evidence that appears to me to be clear and trustworthy.

SOME CASES OF SUDDEN DEATH UNDER ETHER.

BY J. C. REEVE, M.D.,
OF DAYTON, OHIO.

THIS presentation of a series of cases of sudden death under ether is caused by a paragraph in the report of an "Accident with the A.-C.-E. Mixture," by Dr. John H. Packard, published in THE NEWS, for January 8th. That paragraph contains a quotation from my contribution to the American edition of Holmes's *System of Surgery*, vol. iii., and is as follows:

> "Reeve, indeed, says: 'Ether, in the human subject, may produce death as suddenly, as unexpectedly, and in the identical manner that chloroform does.' But, with all respect for his authority, I must say that my own search for such cases among those recorded has been fruitless."

The words quoted were not written by me without due consideration as to what they mean, and I must accept, therefore, this expression of doubt as to their truth, as a sort of challenge to which I feel compelled to respond. Moreover, if a man so well informed as Dr. Packard has never been able to find any such cases, there must be many others, members of the profession, less fortunately situated than he is, to whom it will be good service to present some of these cases, since their importance cannot be exaggerated and their practical bearing is manifold.

A preparatory question as to what is to be considered a death from ether, demands consideration. Dr. Packard, continuing his remarks, says, "In every instance there was either previous disease or some pathological condition discovered after death, which, at least in great measure, accounted for the fatal result," and then goes on to criticise the report of a case which will be presented hereafter. He says it was a case "at first sight very like a chloroform-death; both lungs were found studded with hard cancerous nodules, the liver was adherent to the diaphragm, and the heart was fatty." The report I have says: "there were some nodules of cancer in the liver and lungs," but, either way, these could not constitute a pathological condition which would cause sudden death, neither could the adhesion of the liver to the diaphragm. There remains then the fatty heart, and I believe this is not a fre-

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quent cause of sudden death, *per se;* the patient must be subjected to some powerful disturbing agent, which in this case was the ether. All I would ask in this respect is that the same considerations shall hold as to ether that would have been held had chloroform been administered. More than this should not be asked; less than this I would not accept. In the case criticised by Dr. Packard, had chloroform instead of ether been administered, I am confident that there would not have been a question raised, by any one, anywhere, that the anæsthetic agent was the determining and sole cause of death. Fatty degeneration of the heart has been frequently found after chloroform deaths, but I know of no instance in which it was made to bear the burden of the patient's death, to the acquittal of chloroform as the active agent.

But from the reports of cases which follow, every reader can judge for himself. Only such points as seem to be essential are given, for the sake of brevity, but references to the original sources have been carefully made in every instance. I begin with the first reported case of death from ether.

CASE I.—Paris, July 10, 1847. Patient, male, forty-five years of age; operation for cancerous affection of left breast; "a man of tolerably robust constitution which the disease had not yet deteriorated." After an administration of about ten minutes duration, insensibility was manifest, respiration was loud, slow, but exempt from râles, and the surgeon began the operation. "The incision had scarcely commenced, and only a small quantity of dark blood had escaped, when the countenance changed, and the respiration became slow. The pulse, examined now for the first time, was soft, full, and very slow; all at once it stopped; all was over." The post-mortem revealed an extremely softened spleen, but no affection of a vital organ.[1]

Snow[2] says: "this patient appears to have died rather from the want of admission of sufficient air to the lungs than from the effects of ether. The administration had been slow and after death all the organs gave a strong odor of ether, but to attribute a death so sudden to suffocation is a woful distortion of evidence."

CASE II.—Female, aged fifty-five, in very poor health; operation for tumor of superior maxillary bone, at Lyons, September 11, 1852. The operation had not proceded far, the ascending ramus had not yet been divided, when all at once respiration ceased, the pulse and beating of the heart could not be felt, and all efforts at resuscitation proved fruitless.

Snow says: "this patient evidently died of hemorrhage," yet in a full report of the case[3] by the surgeon, all that is said of this is, "I had tied some vessels upon the edges of the incision!" In his efforts to clear ether of this death, Snow resorts to most astounding logic. He says: "According to the results of my experiments on animals ether is not capable of causing the kind of death which this patient died!"[4] Therefore, belladonna could produce no injurious effects upon man because some animals can eat it with impunity!

The next four cases are taken from Kappeler's table, which contains reports of thirteen cases of death from ether. I have not access to the original reports, even of the cases which occurred in this country. The foot references are those given by Kappeler.

CASE III.—Duming's case, Bellevue Hospital, New York, 1872. Male, sixty-eight years old, etherized for adjustment of fracture of thigh. In ten minutes patient was fully under the influence. After some manipulation inhalation was suspended for four or five minutes. Inhalation recommenced on account of muscular rigidity, but in one or two minutes the administrator observed the pupils suddenly dilate and respiration cease. The heart was still beating. All attempts at resuscitation failed. No report of post-mortem examination.[1]

CASE IV.—Male, aged fifty-four, resection of maxilla for caries. An incision was made along the bone and four teeth extracted, when it was observed that the patient was very blue in the face. Artificial respiration and galvanism were without result. Kappeler says: "The editor of the Boston *Journal* believes that the patient was suffocated by blood in the trachea." The report of the autopsy makes no mention of this.[2]

CASE V.—Dr. Sinclair's case; Boston; operation for incision of the cervix. Soon after the operation was commenced the administrator observed that the pulse was gone, and respiration had ceased. All efforts at resuscitation proved unavailing. The post-mortem examination showed Bright's disease, chronic pleuritis, and embolism of pulmonary artery. The evil influence of the former, as to the effect of ether, was not then recognized as now.[3]

CASE VI.—Lowe's case; the one which Dr. Packard says is "at first sight very like a chloroform death." Female, aged forty-eight, of healthy appearance, and of tolerably strong build. Operation for removal of a mamma. After a few inhalations the patient's face suddenly became turgid and the hands white. The inhaler was at once removed, the tongue brought forward, cold water dashed over the face, and the chest rubbed with brandy; but the breathing became stertorous, the face became more and more congested, the pulse failed, there was an effort at vomiting, and death took place within a few seconds.[4]

Kappeler places this case in his table without any question or expression of doubt as to its being a death from ether.

CASE VII.—Male, aged sixty-nine, much exhausted; London Hospital; strangulated hernia. There was much struggling, as the lips became blue the inhaler was removed. Respiration improved for a brief period, but remained bad. The pulse became worse and worse, and disappeared, while the breathing continued for thirty seconds. Heart flabby, the left ventricle not contracted, the lungs emphysematous, and the bronchi filled with "purulent mucus." Incarcerated hernia.[5]

The next case is published in Holmes's *Surgery*, on the page preceding the report of the case commented on by Dr. Packard, and therefore could scarcely have escaped his attention, but he does not allude to it. In a foot-note it is there stated that the case was never before published, and no names are given in connection with it. I will now say that it occurred to a prominent practitioner of Rhode Island, and the report was furnished me by my friend, Dr. Charles O'Leary, of Providence.

[1] Traité d'Anæsthésie chirurgicale, p. 250. Lallemand et Perrin. Paris, 1863,
[2] On Chloroform and Other Anæsthetics, p. 363. London, 1868.
[3] Traité d'Anæsthésie chir., p. 252.
[4] Op. cit., p. 364.

[1] Lancet, 1872.
[2] Brit. Med. Journal, Dec. 1875. Boston Med. and Surg. Journal, Nov. 1875.
[3] Brit. Med. Journ., Oct. 1876; Boston Med. Journ.
[4] Brit. Med. Journ., Nov. 17, 1877. See, also, New York Med. Record, Jan. 5, 1878.
[5] Brit. Med. Journ., May 26, 1877.

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CASE VIII.—Male, aged sixty-two, addicted to drink. Ether was given for examination of hips injured the day before, patient being in good condition. Two ounces of whiskey given, then ether administered to amount of three or four ounces. Patient never fully anæsthetized; pulse carefully watched. At a period not later than fifteen to twenty minutes from beginning the inhalation, "the patient suddenly, and without any symptomatic warning whatever, stopped breathing, and was dead." "Death was instantaneous," another observer writes. Post-mortem examination showed pleuritic adhesions, heart full of dark fluid blood, its muscular structure healthy; the valves, especially the aortic, affected with atheromatous deposit; liver and kidneys congested, the latter studded with cysts.

The next case occurred in Philadelphia:

CASE IX.—Male, aged sixty-seven; Pennsylvania Hospital. A feeble old man, with strangulated hernia; a hard drinker; had suffered much from exposure and want of food. After anæsthesia by ether had been kept up some time herniotomy was decided upon. Soon after the operation was commenced, a copious bronchial secretion kept filling the patient's mouth; during an effort to expel this a very large portion of the bowels was forced out; at this time the breathing became labored, and the pulse faltered, asphyxia developed rapidly, the patient expired on the table. This was evidently a bad subject for anæsthesia, and a bad subject for operation, yet, in the language of the reporter of the case, "the ether was unquestionably the immediate cause of death."[1]

CASE X.—Male, aged sixty-six years, for some weeks had abdominal symptoms, which finally culminated in complete intestinal obstruction, and right lumbar colotomy was undertaken. "There was no complicating disease in heart or lungs, . . . there was nothing to contraindicate the use of an anæsthetic, or to make one more than usually anxious as to its effect." Ether given by Clover's smaller inhaler. After five minutes the first incision was made by Mr. Pridgin Teale. In ten minutes, just as the reporter "was engaged in counting the carotid pulse, which was beating evenly, and with rather a stronger impulse than before the operation, he showed an inclination to vomit, and ejected a quantity of brownish fluid, smelling strongly of brandy. He then took one deep inspiration, and seemed as if inclined to vomit again; but his head sank back on the pillow, and he quietly died, making no further respiratory effort, except one short gasp during artificial respiration. No post mortem was allowed, but examination failed to show any mechanical obstruction to breathing. The inhaler showed that a little more than an ounce of the ether had been used."[2]

The following two cases are from a paper on "Deaths from Anæsthetics in 1885," by Ernest H. Jacobs, M.A., M.D.[3]

CASE XI.—Male, aged sixty-two years, at London Hospital. Ether given to reduce a dislocation of shoulder. "In three minutes he began to look pale, his breathing was feeble; dusky pallor increased in spite of artificial respiration. At the post mortem the lungs were found emphysematous and congested, and there was bronchitis (?). The heart was flaccid and fatty, with adherent pericardium."

CASE XII.—Girl, aged ten years, much emaciated, and looking very ill; to be sounded for a calculus. When she had taken but a few inhalations she was observed to be very pale, "the pulse ceased, the breathing continued." All efforts of resuscitation were in vain. "This," the reporter says, "is the most remarkable case of the kind I have ever known. The patient took not more than a drachm of ether, and died in a precisely similar manner to that which generally obtains in the case of chloroform."

CASE XIII.—Male, aged fifty years, suffering from severe inflammation of the bowels, due to obstruction. Ether was carefully administered preparatory to an operation. He inhaled it without the slightest hesitation or discomfort, but he had not taken more than three or four inhalations when he fell back, breathed once or twice, and died. At the post-mortem examination there was found considerable purulent effusion in the peritoneal cavity; at the lower part of the descending colon was a malignant mass of the size of small cocoanut, blocking the canal. In the right ventricle of the heart was a fibrinous clot attached to the tricuspid valve. The medical men did not think the patient died from the ether, because death occurred so very early in the administration. The post-mortem failed to explain so sudden a death without the ether as a factor.

This collection of cases is not presented as complete; I am very certain that it is not so. To make it I have not gone beyond the limited resources of my own library. I have not given any cases in which death, evidently due to ether, took place at a period more or less remote from the administration. There are many such on record. Nor will I extend this paper by presenting cases in which dangerous symptoms occurred under ether; just such symptoms as Dr. Packard's patient had from the A.-C.-E mixture. I have kept closely to my text: "*Ether in the human subject may cause death as suddenly, as unexpectedly, and in the identical manner that chloroform does.*" Whether the evidence adduced sustains the proposition or not, must be left to others to determine. If, however, the ground be taken that the cases adduced did not die from ether, then it is incumbent upon the objector to show what they did die from.

Finally, I wish to disclaim, in the most emphatic manner, any feeling of partisanship in this matter. I have no "case" to make out against ether. I have no anæsthetic to advocate as perfectly safe, for such a thing does not exist. I am ready to admit that, *probably*, ether is the safest anæsthetic we possess for general surgical purposes. I am ready to assent to the proposition that, *theoretically*, any mixture of anæsthetics increases in danger, in proportion as chloroform is added to it. But when it comes in practical life to a decision between ether and the A.-C.-E mixture, I choose the latter, because of a lifetime experience with it, because of great practical advantages to the surgeon, and far less unpleasantness to the patient, while its greater danger has never yet been shown. Mathematically, it never can be shown, because the relative number of administrations cannot be learned. Three times I have seen dangerous symptoms from its use. One case has been very briefly published.[1] In one of the others the danger was soon over. In the third, after the patient had been brought around, the A.-C.-E mixture being exhausted, a small quantity—ʒss—of chloroform was administered in order to

[1] Paper by Dr. Thomas G. Morton, Amer. Journ. of Med. Sci., Oct. 1876, p. 415.
[2] London Lancet, Sept. 4, 1880, p. 376.
[3] Brit. Med. Journal, March 13, 1886, p. 489.

[1] New York Medical Journal, December 4, 1886.

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complete the operation. This was speedily followed by a condition so strikingly more dangerous, and from which it was so much more difficult to restore the patient, that all concerned were very well satisfied not to give any more anæsthetic. If now, on account of this experience, the A.-C.-E mixture is to be abandoned, it must be in favor of an agent which has caused the deaths presented in this paper, besides many others in which death occurred later, and which has over and over again caused dangerous symptoms, such as the A.-C.-E mixture caused under my observation and in the hands of Dr. Packard.

HERNIA INGUINO-PROPERITONEALIS; WITH AN ACCOUNT OF A CASE.[1]

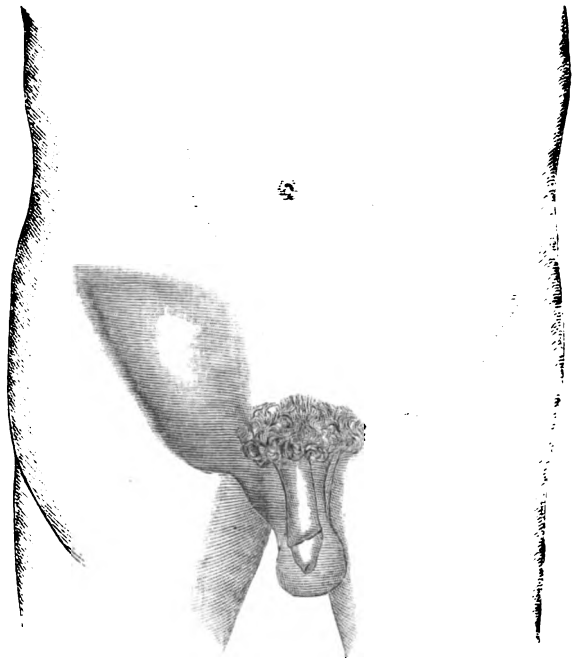
BY CHARLES W. DULLES, M.D.,

SURGEON TO OUT-PATIENTS IN THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, AND THE PRESBYTERIAN HOSPITAL, IN PHILADELPHIA.

THE subject of properitoneal hernia has received but little attention in this country compared to that which has been devoted to it in Europe, and especially in Germany, where, under the influence of the careful and thorough study of Krönlein, it is now well understood; so that this form of hernia has there been a number of times recognized during the life of the patient, and successfully treated, by taxis or by operation, whereas, until Krönlein devoted his attention to it, its history had been one of uninterrupted error and disaster.

Krönlein's teachings in regard to this form of hernia have not yet been fully adopted—indeed, they seem to be scarcely known—in this country, or in Great Britain, so I have taken the opportunity afforded by a recent personal observation of a case to make it the starting-point for a presentation of the subject of properitoneal hernia as it is now understood.

The case I refer to is the following: Mr. S., aged fifty-six years, had suffered with hernia ever since he was a small boy, and perhaps since his birth. For many years he wore a truss, which became old and useless. A number of times his hernia had become painful, and had required considerable effort for its reduction. On September 6, 1886, after a natural movement of the bowels about midday, he found his hernia irreducible. Dr. John H. Musser was called to see him, and failing to effect complete reduction, even when the patient was etherized, called me to assist him. On examination about 9 P.M., I found the tumor different from anything I had ever before seen in a hernia. It was a hard, tense swelling, about as large as a fist, longer than broad, and lying above Poupart's ligament. It extended from near the symphysis pubis to near the anterior superior spine of the right ilium. The surface was marked by a slight furrow parallel to Poupart's ligament. (The illustration shows the appearance of the parts.) On pressure over the abdominal wall the hernia could be partly grasped in the hand, and it felt as if it was largely within the abdominal cavity. It was dull on percussion, and quite tender. The right side of the scrotum was empty and atrophied, the testicle being felt above the scrotum, in the inguinal canal, and flattened against the bottom of the hernia. The left side of the scrotum was normal, and contained a normal testicle.



A new attempt at reduction, under ether, failed, and the patient was ordered cold applications (pouring on of ether) and opium. He was more comfortable the next morning, September 7th. At this time, owing to some uncertainty about the previous history, and on account of the apparent presence of considerable fluid in the tumor, and of the absence of definite signs of strangulation, I had a suspicion that the case might be one of encysted hydrocele of the spermatic cord, partly within the abdomen. I therefore introduced an exploring needle, which evacuated some serum and moved about freely in what seemed to be a large cavity. I then introduced a small trocar and canula, but this only evacuated about four fluid-ounces of bloody serum, while the upper and outer part of the tumor remained tense and elastic.

Prof. John Ashhurst was now called in consultation, and advised an exploratory operation—to be made a complete herniotomy in case the tumor was a hernia, as he thought it was. The operation was then performed with his assistance. His opinion proved correct, and with much difficulty the seat of strangulation was found and divided, and the intestine—a mass about as large as a small fist—was returned to the abdominal cavity. The sac was large, the intestine was dark but glistening, although it was somewhat roughened by recent deposits of lymph. It was necessary to divide two constrictions, one at the external ring, and one higher up and deeper in the abdomen. The incision in the sac was closed with catgut, and the incision in the skin with silver wire and black silk sutures. A

[1] Read before the Philadelphia Academy of Surgery, December 6, 1886.

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strand of catgut was left in as a drain, and the wound was dressed with lint soaked in a sublimate solution and with a pad of sublimate jute. The subsequent treatment consisted in the use of opium by the rectum, and small quantities of whiskey and water by the mouth. For forty-eight hours the patient had no pain worth mentioning, and no rise of temperature above 99⅘°, while his pulse fell from 140 beats in the minute immediately after the operation to 96 beats. His belly became slowly distended, and he had frequent attacks of hiccough.

On September 9th, fifty hours after the operation, his temperature was 99°, his pulse 96, his respiration unimpeded, his skin moist, his tongue moist and clean, his intelligence clear; he had no pain, his wound was dry and looked well, and there was not a single unfavorable symptom except the moderate tympany. His whiskey was now increased to three fluid-drachms every hour, and he was given a little hot beef-tea every half hour. In the evening his pulse was 96, and his temperature 98⅘°. The night was passed with some restlessness, and, for the first time since the operation, he passed some flatus. On September 10th, extract of hyoscyamus, half a grain, and assafœtida, five grains, were given hourly, to get rid of the tympany. He was also given some milk punch. In the evening he was manifestly failing; mustard was applied to his chest, and hot water and whiskey was given hourly. His heart-beat became feeble, and his respiration much oppressed. At 3 A.M. of September 11th I was called, and found his breathing so labored that I performed paracentesis of the intestine with an aspirator-needle, and evacuated considerable gas and about six fluid-ounces of grumous fluid, such as had come up from his stomach before. He had not vomited at any time, but at intervals part of the fluids taken into his stomach came up into his throat without effort and was spit out. As the tympany increased, the pressure seemed to squeeze up part of the contents of his stomach. This had a peculiar, mawkish odor, but no fecal characteristics. The paracentesis relieved the patient decidedly. His abdomen became relaxed, his breathing became easy and gentle, and his heart acted a little better. The issue was not changed, however, for he gradually sank, and died quietly at 7.30 A.M., about ninety hours after the operation.

Autopsy.—The autopsy was made by Dr. W. E. Hughes, in the presence of Dr. Musser and myself. The operation wound was thoroughly agglutinated and uniting, without any evidence of local irritation, although in the sac of the hernia two small pockets were found, each containing a little very thick pus. In the abdominal cavity there was no effusion. The stomach was large and dilated. The bowels were congested and pretty generally—but not firmly—agglutinated with recent lymph. The point of puncture in the intestine for paracentesis was patulous, but no fluid or gas had escaped into the peritoneal cavity. The portion of intestine lying next to the wound was in good condition, and showed no sign of inflammation. In the left iliac fossa a mass of small intestine, about the size of a fist, was found deeply congested and quite firmly bound together with lymph, and near it was the atrophied and distorted right testicle.

The history of this case illustrates a number of interesting points: the importance of early operation for incarcerated hernia; the advisability of operating, even if there be some uncertainty in the diagnosis; the fact that peritonitis may progress without any signs of inflammatory action except tympany, if that can be called such a sign; the difficulty of combating the progress of the tympany; and the deceptive character of an appearance of doing well for several days after operation.

But the most interesting feature of the case is the fact that it was, in my opinion, one of that rare form of hernia to which Krönlein has given the name of "properitoneal hernia."

This form of hernia is not accurately described in any of our American, or of the English, works on surgery, so far as I know. I will cite what I have been able to gather on this subject from the works of Fellows of this Academy.

The late Professor S. D. Gross, in his *Surgery*, sixth edition, vol. ii. p. 540, says: "There is a peculiar form of inguinal hernia, accompanied by an undescended testicle, in which the tumor extends uncommonly far outward and upward toward the crest of the ilium." And he mentions an interesting case, under his charge, in which such a hernia, of only five years' standing, extended from the symphysis pubis to the anterior superior spinous process of the ilium, and hung down over Poupart's ligament nearly as far as the upper third of the thigh. In this case the testicle occupied a very unusual position, namely, the outer side of the hernial protrusion, between the internal ring and the anterior superior spinous process of the ilium.

Professor Agnew, in his *Surgery*, first edition, vol. i. p. 471, speaks of the occasional presence of diverticula, generally in connection with congenital hernia extending backward beneath the iliac fascia into the iliac fossa, or inward into the loose tissue in front of the bladder, or upward between the integuments and the external oblique muscle, constituting what are termed "interstitial or interparietal" hernia. And, on p. 483, he says that an undescended testicle will sometimes force a rupture out toward the spinous process of the ilium, even down over Poupart's ligament upon the thigh. "This," he says, "forms the *intraparietal hernia* of some writers." And he mentions, on page 484, a case of the kind upon which he operated.

Professor Ashhurst, in his *Surgery*, third edition, p. 815, speaks of a form of hernia called "inguino-crural" by Holthouse, which is suddenly developed, and which, owing to some obstruction—as by an undescended testicle—protrudes along the folds of the groin; and of other forms in which prolongations of the sac (vaginal process) extend in various directions *within* the abdominal walls, constituting the *interparietal* or intermuscular herniæ of English authors, the "hernies en bissac" of French surgeons, and the inguino-properitoneal hernia of Krönlein. On page 825, he speaks of the complication of crural hernia with an additional sac between the peritoneum and the abdominal wall, in the cellular

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tissue of the pelvis and side of the bladder. This form of hernia is termed "cruro-properitoneal" by Krönlein.

From these quotations it will be seen that the occurrence of such hernias as have been called "properitoneal" by Krönlein has not been overlooked by the Fellows of this Academy. But Krönlein's work in elaborating the subject entitles him to special recognition. Some confusion has doubtless taken place in naming their hernias, as is evidenced by the variety of terms proposed for them. It may be admitted that there are cases for which the term "intraparietal" or "intermuscular" would be more accurate than Krönlein's term, "properitoneal," but the terms "interstitial" and "interparietal" do not seem to me to be well chosen. The term "properitoneal," while not fully descriptive, may, I think, be accepted as convenient, and employed to describe hernias occupying unusual positions within the abdominal or pelvic wall in front of the peritoneum, lest an attempt to improve upon it should result in greater confusion than already exists, although as Sonnenburg has suggested "praeperitoneal" would be a more accurate term. The term "intermuscular" is a good one for a hernia between the layers of the abdominal muscles, and Küster has recently[1] proposed completing the nomenclature of these irregular hernias by adding the term "hernia inguino-superficialis," to designate hernias which lie outside the muscles, covered only by the skin and superficial fascia. These hernias he divides further into:

1. Hernia inguino-superficialis abdominalis,
2. Hernia inguino-superficialis cruralis,
3. Hernia inguino-superficialis perinealis,

as they occupy respectively the region of the lower abdomen, the thigh, or the perineum.

The adoption of these terms may contribute to accuracy in describing peculiar hernias; and it seems to me that it would be rational to speak of properitoneal, intermuscular, and superficial hernias as constituting three distinct and clearly defined classes. For the present we are concerned with the first of these classes, namely, hernia properitonealis.

The first paper by Krönlein, on this form of hernia, was published in 1876, when he was assistant to Professor Langenbeck.[2] In this paper Krönlein described a case of a man, fifty-four years old, who came under Langenbeck's care in 1875. The history corresponds in many particulars to that of the case under my own care described above. The man was within two years of the same age, but had a congenital right inguinal hernia, with an undescended testicle. He had worn a truss for twenty-seven years, and the hernia had recently escaped from its control and become incarcerated. The tumor occupied the right groin, and the testicle could be felt at the bottom of the swelling. On taxis the mass was thought to be reduced, but signs of strangulation recurred, and Langenbeck suspected reduction *en masse*, with internal strangulation. He then cut down upon the tumor through the abdominal wall the next day, opening what he supposed to be the abdominal cavity. He resected the intestine, which was gangrenous, replaced it, and sewed up the wound. The next day the patient died in delirium (alcoholic). The autopsy disclosed the fact that the operation had opened only a small sac in the inguinal canal and scrotum, and a large diverticulum between the transversalis fascia and the abdominal peritoneum, a properitoneal sac, in which the hernial mass was still contained.

The explanation of this case offered by Krönlein is that the patient had had a congenital inguino-scrotal hernia, which, when held up by a truss, had pushed its way up between the peritoneum and the transversalis fascia. Some new bowel came down into the inguino-scrotal sac, and the contents of the diverticulum became strangulated. The later protrusion was replaced by the taxis, the older became gangrenous, and, when operated upon, was left in its sac, which was mistaken for the abdominal cavity.

Streubel,[1] in 1864, published a paper in which he collected fourteen cases of apparent reduction of hernia, in which the hernia was wholly or partly in a diverticulum of the peritoneum. Krönlein has found other similar cases recorded by Dittel,[2] Bär,[3] Fieber,[4] Mosetig,[5] and E. Richter.[6] And Froriep[7] recorded, in 1846, a case so similar to that described by Krönlein that the latter very appropriately reproduces the description *in extenso*.

In Langenbeck's (Krönlein's) case the seat of strangulation was the opening into the properitoneal sac; in the majority of other recorded cases Krönlein thinks it was in the common opening into this and into the original sac in the inguino-scrotal region. It has never been found in the opening into the latter alone. All the cases recorded up to this time had ended fatally, and it seems that in not one had the nature of the hernia been recognized before death.

A similar complication in femoral hernia Krönlein proposes to call "hernia cruro-properitonealis."

The mechanism of properitoneal hernia is explained by Streubel as follows: When the neck of the sac has become contracted, pressure upon the contents drives the firm cicatrix of the neck up and presses out a lateral diverticulum under the muscles and above the peritoneum. This result may be favored by the action of an imperfect truss, or it may be caused solely by the obstruction of an undescended testicle. Bär and Richter attribute the formation of a properitoneal sac to the existence of a congenital or acquired anomaly of the parietal

[1] "Beiträge zur Lehre von den Hernien." Langenbeck's Archiv, Bd. xxxiv. pp. 202-221, 1886.

[2] Herniologische Beobachtungen aus der v. Langenbeck'schen Klinik. Von Dr. R. U. Krönlein. Langenbeck's Archiv, Bd. xix. pp. 408-425, 1876. 1. Hernia inguino-properitonealis incarcerata.

[1] Streubel, C. W.: Ueber die Scheinreductionen bei Hernien, etc. Verhandlungen der med. Gesellschaft zu Leipzig, Bd. i. Leipzig, 1864.

[2] Dittel: Zeitschrift der Gesellschaft der Aerzte in Wien, 1864, No. 15.

[3] Bär: Prager Vierteljahrsschrift, Bd. iv., 1866.

[4] Fieber: Wiener med. Wochenschrift, 1866, No. 100.

[5] Mosetig: Ueber die Anomalien bei der Herniotomie der Leisten und Schenkelbrüche. Wien, 1867.

[6] Richter, E.: Studien zur Lehre von den Unterleibsbrüchen. Leipzig and Heidelberg, 1869.

[7] Froriep, R.: Chirurgische Kupfertafeln. Weimar, 1846. Taf. ccccxxiii.

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peritoneum. In cases in which the testicle is found in the inguino-scrotal part of the sac, the diverticulum is supposed to have been associated with a congenital inguinal hernia.

The occurrence of such diverticula is not very rare, being mentioned by such authors as Rokitansky,[1] W. Gruber,[2] Linhart,[3] Hartung,[4] and Bär.[5]

In 1880, Krönlein published a second paper on this subject,[6] in which he collected 9 cases in addition to the 14 collected by Streubel, in 1864. In these 9 cases, as in the 14, the diagnosis was made only after the death of the patient, and no attempt at relieving the obstruction by taxis or by herniotomy was successful. In addition to these, Krönlein here reports a case of reducible hernia properitonealis, in a man twenty-two years old, which came under his observation in 1879. He also gives an abstract of the reports of all the cases thus far recorded—so far as he knew them—a total of 24 cases, as follows:

1. Fieber.[7] Man, thirty-two years old; left incarcerated scrotal hernia: herniotomy, death, and autopsy, at which an unsuspected properitoneal hernial sac was found on the *right* side.

2. Krönlein. Man, twenty-two years old. The case of reducible properitoneal hernia just mentioned.

3. Parise.[8] Man, thirty-four years old; incarcerated inguinal hernia (the side not mentioned); in which herniotomy was performed unsuccessfully, and the intestine was found in the properitoneal sac at the autopsy.

4. Cock.[9] Man, thirty-five years old; left incarcerated inguinal hernia; in which herniotomy was unsuccessfully performed, and the intestine was found in the properitoneal sac at the autopsy.

5. Textor.[10] Man, twenty-five years old; right incarcerated inguinal hernia: herniotomy, death; autopsy, at which some intestine was found in the inguinal canal, and more in a pocket between the peritoneum and the bladder. In the operation the epigastric artery was divided.

6. Hilton.[11] Man, twenty-four years old; left incarcerated inguinal hernia; herniotomy, death; intestines found at autopsy in a sac lying on the iliacus muscle.

7. Birkett.[12] Man, thirty-six years old; right incarcerated scrotal hernia; supposed reduction, death; autopsy, intestine found in a sac within belly wall extending up toward the crista ilii.

8. Froriep.[13] Man, twenty-eight years old; internal strangulation, no tumor: no operation, death; autopsy, strangulated intestine found in open process in vaginalis, and in sac between transversalis fascia and peritoneum.

9. Dittel.[1] Man, nineteen years old; incarcerated inguinal hernia (side not stated): herniotomy, death; autopsy; two diverticula were found lying upon (over?) the transversalis fascia.

10. Langenbeck.[2] (Recorded by Krönlein.) Man, fifty-four years old; right incarcerated inguinal hernia; herniotomy, resection of gangrenous bowel, death; intestine found in properitoneal sac, which had been mistaken for the abdominal cavity.

11. Hernu.[3] Man, forty years old; right scrotal hernia: herniotomy, resection of omentum, no intestine in sac, death; autopsy, gangrenous intestine in a sac between bladder and pubic bone.

12. Cooper,[4] Sir Astley. Man, fifty-eight years old; right incarcerated scrotal hernia: reposition, continued symptoms of strangulation, herniotomy, sac empty, death; autopsy, gangrenous intestine in a sac behind transversalis fascia and going downward toward femoral ring, scrotal sac empty.

13. Janzer.[5] Man, twenty-four years old; reducible right scrotal hernia: internal strangulation, no operation, death; autopsy, some omentum in inguinal canal, a dark coil of strangulated small intestine in a sac behind the pelvic fascia.

14. Lehman.[6] Man, forty-five years old, reducible right inguinal hernia, strangulation, herniotomy, sac empty, death; autopsy, gangrenous intestine in a properitoneal sac behind the transversalis fascia.

15. Fieber.[7] Man, twenty-four years old; right incarcerated inguinal hernia: herniotomy, death; autopsy, inguinal sac empty, suppurating omentum found in a sac passing into the pelvis and resting upon the obturator membrane.

16. Von Wahl.[8] Man, thirty-eight years old; left incarcerated scrotal hernia: herniotomy, resection of gangrenous intestine, partial reduction, death; autopsy, inguinal canal empty, sutured intestine found in properitoneal sac passing upward and backward, muscles much atrophied.

17. Bär.[9] Man, fifty-two years old; right incarcerated scrotal (?) hernia: herniotomy, *no sac in scrotum*, small sac in inguinal canal replaced, death; autopsy, a foot and a half of strangulated small intestine in a sac between the bladder and the pubic bone.

18. Arnaud.[10] Man, sixty-eight years old; incarcerated inguinal hernia (side not stated): herniotomy, death; autopsy, dark intestine in a diverticulum of the sac in front of the peritoneum above the pubic bone.

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[1] Rokitansky: Handbuch der speciellen pathologischen Anatomie, Bd. ii., Wien, 1842.
[2] Cited by Linhart.
[3] Linhart: Vorlesungen über Unterleibshernien, Wurzburg, 1866.
[4] Hartung: Taschenbildung bei eingeklemmten Leistenbrüchen. Deutsche Klinik, 1856, No. 43.
[5] Bär: Prager Vierteljahrsschrift, Bd. iv., 1866.
[6] Weitere Mittheilungen über Hernia inguino-properitonealis. Langenbeck's Archiv, Bd. xxv., 1880, pp. 548–579.
[7] Wiener med. Wochenschrift, 1867, No. 83.
[8] Mém. de la Soc. de Chir. de Paris, t. ii. p. 399.
[9] Guy's Hosp Reports, vol. v., 1847, p. 52.
[10] Verhandl. der physik-med. Gesellschaft zu Wurzburg, Bd. vii. p. 35.
[11] Bryant: Guy's Hosp. Rep., 3d ser., vol. vii., 1861.
[12] Guy's Hosp. Rep., 3d ser., vol. vii., 1861, p. 270.
[13] Chirurgische Kupfertafeln, Weimar, 1846, Taf. ccccxxii.

[1] Zeitschrift der Gesellschaft der Aerzte zu Wien, 1864, No. 15, und Prager Vierteljahrsschrift, 1865, p. 44.
[2] Case mentioned above. Krönlein: Langenbeck's Archiv, Bd. xix., 1876.
[3] Journal de Sédillot, tome xi. p. 291.
[4] Cooper on Hernia, 2d ed., Trans. Weimar, 1833.
[5] Aerztliche Mittheilungen aus Baden, Bd. xii., 1859.
[6] Varges Zeitschrift, N. F. I., 1, 1862, p. 12.
[7] Wien. med. Wochenschrift, 1867, No. 100.
[8] St. Petersburger med. Wochenschrift, 1879, No. 27.
[9] Prager Vierteljahrsschrift, Bd. xcii., 1866, S. 98.
[10] Traité des hernies ou descentes, Paris, 1749, Pars ii, p. 48 obs. vi.

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19. Pelletan.[1] Man, forty years old; incarcerated left inguinal hernia: herniotomy, reposition, strangulation continued, death; autopsy, the bowels had been replaced, not in the abdominal cavity, but in a sac behind the pubic bone.

20. Cock.[2] Man, sixty-four years old; incarcerated left scrotal hernia: reposition, internal herniotomy, death; autopsy, sac between iliac fascia and peritoneum containing intestine and omentum.

21. Streubel.[3] Man, seventy-three years old; double reducible inguinal hernia: no tumor on right side, internal strangulation, no operation, death; autopsy, reducible hernia on left side, on right side empty inguinal sac, diverticulum between transversalis fascia and bladder, containing four inches of black intestine.

22. E. Richter.[4] Man, fifty-four years old; left inguinal hernia: apparent reduction by taxis, symptoms of strangulation continued, herniotomy, death; autopsy, coil of strangulated intestine found in a diverticulum of peritoneum extending from the internal inguinal ring toward the bladder.

23. Péan.[5] Woman, sixty-five years old (the only female in the list); incarcerated left inguinal hernia: internal herniotomy, bowel apparently reduced, death; autopsy, bowel found to have been reduced into a sac between the iliac fascia and the peritoneum.

24. Tissier. To these Krönlein adds a case of cruro-properitoneal hernia in a woman thirty years old, reported by Tissier to the Anatomical Society of Paris, May, 1834.

I have been able to add to these statistics the following cases:

25. Neuber.[6] Man; strangulated inguino-properitoneal hernia in the right side, in which, in June, 1880, he opened the sac, removed part of the omentum, found an opening into the diverticulum above Poupart's ligament, stretched and tore it with the finger, reduced its contained omentum and bowel, tore the membrane wide open, excised the lower sac, closed the neck and the opening of the lower sac with a continuous catgut suture, put in an absorbable drain, and closed the wound and dressed it. The patient recovered without any trouble, and in less than four weeks was dismissed with a truss.

This is the first case in which such a hernia has been treated successfully by operation.

26. Krönlein.[7] Man; successful operation for a right strangulated properitoneal inguinal hernia, in January, 1881. The incision was carried from the anterior superior spine of the ilium, above Poupart's ligament, to the external ring. The testicle lay at the bottom of the hernia, and was removed. Part of the properitoneal sac was also removed, part being too adherent to the parietal peritoneum to be safely excised. The opening into the abdominal cavity was closed with catgut, and the transversalis fascia also. The insertion of a long drain, which was brought out of a counter-opening at the bottom of the right side of the scrotum, and closure of the external wound with silk sutures, completed the operation. The patient recovered without any interruption.

27. Santesson, of Stockholm, in 1858, saw a case of incarcerated inguino-properitoneal hernia which was discovered at the autopsy after an unsuccessful herniotomy.[1]

28. Rossander, operating for an incarcerated femoral hernia, found that it was of the cruro properitoneal variety, modified his operation accordingly, and his patient (a man) recovered.[2]

29. Trendelenberg.[3] Man, eighteen years old; strangulated right inguino-scrotal hernia: taxis unsuccessful, herniotomy, extension of incision, laparotomy through linea alba, reduction, closure of wounds, recovery. The patient had never worn a truss, never made attempts to restore his hernia, or even known that he had one.

30. Baron. (December, 1884.) Woman, sixty-eight years old; left incarcerated femoral hernia: herniotomy, division of crural ring, bowel returned; a second sac as large as a fist within the abdominal wall discovered, its opening drawn down(!), divided, reduction of bowel, wound closed, recovery.

31. Baron.[4] Man, (?) years old, incarcerated right inguinal hernia (February 26, 1886), as large as a walnut, with a swelling as large as two palms beneath the abdominal wall. Diagnosis of properitoneal hernia. Operation. Small inguinal sac, and properitoneal sac as large as two fists, containing forty centimetres of intestine; division of upper opening, reduction of bowel, suture of opening with catgut, drainage tube inserted, closure of wound, recovery.

32. Tansini.[5] Woman, fifty years old; incarcerated right crural hernia: herniotomy, resection of gangrenous intestine, continued signs of strangulation, death in four days. Autopsy: the intestine was found in a sac between the parietal peritoneum and the transversalis fascia, extending toward the true pelvis. As signs of such a complication, Tansini enumerates: 1, continuation of congestion of the bowel; 2, difficulty in replacing the bowel; and 3, the continuation of symptoms of strangulation.

33. Dulles. Man, fifty-six years old; incarcerated right inguinal hernia: undescended testicle, taxis, herniotomy, death, autopsy. (Case described above.)

In considering these statistics the following points are worthy of notice. The great majority of the patients were males (29 males to 4 females); the

[1] Clinique chirurgicale, Paris, 1810, tome iii. p. 359, obs. viii.
[2] Guy's Hosp. Rep., vol. v., 1847, obs. iv.
[3] Ueber die Scheinreductionen bei Hernien, Leipzig, 1864.
[4] Studien zur Lehre von den Unterleibsbrüchen, Leipzig, 1869, p. 94.
[5] Lancet, Jan. 29, 1876, p. 172.
[6] Hernia Inguino-properitonealis incarcerata geheilt durch Hernio laparotomie. Langenbeck's Archiv, Bd. xxvi., 1881, pp. 509-512.
[7] Weitere Notiz über die Hernia inguino-properitonealis. Langenbeck's Archiv, Bd. xxvi, 1881, pp. 521-524.

[1] Hygiea, 1858, p. 584. Cited by Krönlein *l. c.*, and by Rossander, Hygiea, 1881.
[2] Rossander: Om Hernia-properitonealis (Krönlein). Hygiea, 1881. Cited by Krönlein, *l. c.*
[3] Trendelenberg: Ueber Hernia inguino-properitonealis und Hydrocele abdominalis bilocularis. Arch. f. klin. Chir., Bd. xxvi., 1881, pp. 867-872.
[4] Baron: Properitoneale Hernie, Kg. Gesellschaft der Aerzte in Buda-Pest. Wiener med. Presse, April 18. 1886.
[5] Tansini, Iginio: Sopra un caso di ernia cruro-properitoneale. Milano, 1886; and Centralblatt für Chirurgie, July 31, 1886.

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ages ranged from 18 to 73 years, there being, of those whose age is stated,

Under 20 years . . .	2
From 20 to 30 . . .	6
" 30 to 40 . . .	6
" 40 to 50 . . .	3
" 50 to 60 . . .	6
" 60 to 70 . . .	4
" 70 to 80 . . .	1
	28

The majority of patients were in middle life. In 16 cases the hernia was on the right side, and in 9 on the left. In almost all of the cases the hernia was congenital, and in many it was accompanied by an undescended testicle. In only six of the cases was the nature of the hernia diagnosticated during the life of the patient, and all of these patients were saved, one without operation and five after operation. In twenty-seven cases the diagnosis was erroneous, and all of these patients lost their lives.

This last is the most important point of all, and justifies an effort to call attention anew to this peculiar form of hernia; for it appears that until Krönlein made it the subject of study, and urged it upon the notice of the surgical world, its history had been one of unbroken disaster, and that since he did this, properitoneal hernia has become as amenable to surgical treatment as any other form of hernia.

I strongly suspect that a more thorough study of the statistics of hernia in general, and especially of a large number of accounts of cases published under equivocal titles would disclose the fact that there are many more cases of properitoneal hernia on record than have been included in this paper. A considerable number have doubtless been recorded in this country, and some of the whole number may have been cured by taxis, or by operations stated to have been very difficult, although their exact nature was not understood. It may, indeed, be inferred that one of the cases I have mentioned above (that of Baron, No. 30) the diagnosis was not clearly understood by the operator. Nevertheless, the fact remains that Krönlein's work has contributed to a very great improvement in the prospects of patients with properitoneal hernia, and it cannot be a waste of labor to endeavor to spread the knowledge of it in this country.

LEAD POISONING FROM AN UNUSUAL SOURCE.

BY EDWIN H. BIDWELL, M.D.,
OF VINELAND, N. J.

A FEW months ago I was consulted by a middle-aged farmer who complained of having suffered for a week or more with pain in the abdomen, constant, but rather worse at night, and sometimes increasing to almost a colic. Along with this, there were loss of appetite, *malaise*, and obstinate constipation. Not considering the case of much moment, I carelessly treated him "in the dark," with one remedy and another, for about ten days, without any appreciable change for better or worse.

Then it was suggested to me that the duration, now over two weeks, and the obstinacy of the abdominal symptoms indicated lead poisoning. No blue line upon the gums was detected, though it is not impossible that it was present. The urine was not examined. All the sources of lead poisoning then known to me, or that I could think of, were carefully investigated.

The patient, formerly an officer in the British army, and a very intelligent man with a considerable smattering of chemistry, gave valuable help in the search, and it did not seem that the cause of the lead poisoning, if such it was, could escape us. But no possible source of absorption of lead could be discovered. Nevertheless, it was determined to make a therapeutic test, and a short course of sulphate of magnesia, followed by iodide of potassium, cleared up the symptoms, and established the diagnosis.

The case was then set down as one of the unexplainable ones so frequently occurring in a young man's practice, and remained in that list until a week or so after the cure had been effected, when my patient called upon me to say that he had solved our puzzle. He makes domestic wine for his own consumption, and having some that had "gone wrong" he had distilled it together with the lees from his wine barrels. For the worm of his improvised still he had used a coil of lead pipe. When the use of lead in this way occurred to his mind, he remembered, for the first time, noticing in the last run of his "high-wine" or brandy, which was the first to be used for his daily "grog," a slightly sweetish taste.

Evidently some of his wine had undergone the acetic fermentation; and the acetic acid, being less volatile than alcohol, had distilled only at the last of the process, when, trickling down through the lead pipe, it had taken up and carried with it the poison as sugar of lead.

The fact that that portion of the distillate which had the peculiar sweetish taste had been consumed when the antidotes were finally given, no doubt contributed not a little to the prompt success of the treatment.

There have been reported in England recently quite a number of cases of lead poisoning by home-made wine, the fruit acids having acted upon the glaze of earthenware vessels used for fermenting. Such cases cannot be of frequent occurrence in this country, for here, or at least in that portion of the United States with which I am familiar, the fermentation of wine is almost invariably carried on in wooden receptacles.

My case shows a possible danger, also, in distilled spirits. But the danger here is, I judge, still less, for the possibility of contamination by lead is probably confined solely to the product of amateur distillers, and they, owing to the vigilance of Uncle Sam's revenue officials, are few in number, and their output not widely distributed. Still it may be worth while to put the case upon record as an illustration of an unusually obscure cause of a not uncommon ailment.

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MEDICAL PROGRESS.

TERMINATION AND TREATMENT OF EXTRAUTERINE PREGNANCY.—MAYGRIER, in a recent thesis, writes as follows on this subject: Whatever be the anatomical peculiarities of a case of extrauterine pregnancy it must terminate in the rupture or retention of the fœtal cyst. Rupture, which is exceptional in abdominal pregnancies, is the rule in tubal pregnancies, and often occurs at the second or fourth month. Occurring abruptly, it produces death by hemorrhage, peritonitis, strangulation, or septicæmia. Recovery can occur when the rupture occurs during the first weeks; early rupture produces the symptoms of periuterine hæmatocele, and the diagnosis cannot be made positively without an exploratory incision.

In exceptional cases recovery may occur in cases further advanced, the fœtus dying and undergoing absorption, or living until viable. A retained fœtus may become encysted as a foreign body, and undergo calcareous degeneration; this degeneration presents great varieties.

It is well, with Barnes, to advise patients in whom encystment has resulted favorably to avoid subsequent pregnancies, as the retained cyst may become the occasion of dangerous accidents: when new pregnancies occur they may give rise to inflammation and suppuration in the cyst, and peritonitis follow.

Spontaneous evacuation of ruptured cysts occurs through the intestines, tbe abdominal wall, the vagina, and the bladder.

Treatment varies with the stage of fœtal development.

In early months, before the rupture of the cyst, it should be removed by laparotomy; the fœtus may sometimes be removed per vaginam.

When the cyst ruptures immediate gastrotomy is the only treatment; in Lawson Tait's hands 21 of 21 patients so treated recovered.

In the last months of pregnancy, when the child lives, laparotomy will save the mother from the dangers which threaten; when the child is dead, the expectant plan should be followed, and laparotomy done only as dangers arise which necessitate it.

When the fœtal cyst is only partially opened, the intervention must vary with the case.

In summing up, the author considers laparotomy indicated in the first months of extrauterine pregnancy, and at the rupture of the sac; in the later months of pregnancy, when the child lives (with special care against placental hemorrhage), and when the child has been dead for some time.

Elytrotomy is preferred when the fœtus is fixed in the pelvis, when the placenta is not lying between the cyst and the vaginal wall.—*Revue de Chirurgie*, November 10, 1886.

SURGICAL ANTISEPSIS IN THE BULGARIAN WAR.—In one of the last numbers of the *Archives de Médecine Militaire*, M. AUDET gives a brief surgical history of the Serbo-Bulgarian War. Of three thousand wounded men carried to Belgrade Maydl reported fifty-one deaths, twenty-two of which were due to tetanus, leaving a direct surgical mortality of less than one per cent. Iodoform dressings were used, and there was not a single case of erysipelas, notwithstanding that the sanitary and moral surroundings of the wounded were very bad. Of two hundred wounded, Schmidt reported only three deaths; there were four cases of traumatic erysipelas, but none of gangrene or of pyæmia. Dressings of iodoform and corrosive sublimate were used. At Sophia the wounded were received in a pronounced septic condition, but the same favorable results were obtained by antisepsis. Notwithstanding the lack of care on the battlefield, of one hundred and thirty-six cases of injuries, many of which were wounds of bones or articulations, reported by Dr. Blum, there was no case of pyæmia or erysipelas. Iodoform gauze was used in these cases. Similar favorable results were reported by other surgeons in the field, and a comparison of these statistics with those of like injuries a few years ago leaves little room to doubt the value of antisepsis and cleanliness in the treatment of wounds.

IODOFORM IN PHTHISIS.—HUCHARD combines iodoform with creasote in the treatment of phthisis as follows:

℞.—Iodoform,
Creasote,
Pulv. benzoin.
Balsam tolu . . . . āā gr. j.—m.
Sig.—Two to four pills daily.

—*Journal de Médecine*, December 19, 1886.

THE DIETETIC TREATMENT OF ECZEMA.—PROFESSOR SCHWENINGER (*Charite-Annalen*, xi.; *Monatshft. f. prakt. Dermat.*, Nov. 1886, p. 521) believes in dieting eczematous patients, but not after any hard-and-fast general dietary laws. Each patient must be treated according to his case, and at first be put upon as simple a diet as possible. When this basis is reached, the patient's taste is to be consulted and his diet made more varied, care being taken to avoid anything that is known to disagree with him. Sometimes it is advisable to have a patient increase the number of meals in a day, while decreasing the quantity of each one. Some patients do best on solid food alone, leaving out tea, coffee, and the like. Sometimes the best results are obtained by having the patient eat of only one sort of food at a meal—whatever he fancies. In many cases of chronic eczema a liberal supply of water, or rather of fluid, is useful, and this not taken at once, but often in small quantities. Up to three quarts of fluid may be taken in this way. The addition of salt to the dietary is also useful.

HYSTEROGENIC ZONES ON MUCOUS SURFACES.—Attacks of a spasmodic or of a lethargic nature in hysterical patients can often, as is well known, be excited by touching or pressing upon certain spots or zones on the surface of the body. These external "hysterogenic" zones were examined and described by M. Gaube, and later by M. Blanc-Fontenille. Quite recently, too, M. Lichtwitz, who had been asked by M. Pitres to examine a hysterical patient laryngoscopically, observed that a severe convulsive attack was produced by touching the epiglottis, and subsequently by examining the mucous membranes of half a dozen hysterical patients, he has been able to show that hysterogenic zones exist there as well as on the external surface. In all the six cases the

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nasal fossæ were the seat of spasmogenic zones, which were bilateral except in one instance, in which touching the nasal mucous membrane on one side produced a hypnotic attack. In four cases either spasmogenic or lethargogenic zones were found in the laryngeal mucous membrane, the posterior wall of the pharynx presenting one instance of each kind. The mucous membrane of the gums, the conjunctivæ, and the external auditory meati also furnished "zones." In some of the cases the sensitiveness was obliterated by cocaine, so that necessary therapeutic applications could be made; in other cases the use of cocaine did not succeed. In one case, in which the leg was in a plaster bandage, where a violent attack might have proved serious, a convulsion, which was accidentally induced by touching the mucous membrane, was arrested immediately by a friend whom the patient had brought with her, who was acquainted with her external spasmo-inhibitory zones.—*Lancet*, December 25, 1886.

MYRTOL has been recently studied by DR. LINARIX, who obtains it from the leaves of the myrtle; its distillation gives a liquid of characteristic fragrance, of less density than water, staining paper but the stain evaporating perfectly. Its taste is hot, a little acrid, followed by a sensation of coolness. Myrtol is an excellent disinfectant and antiseptic. It is unirritating to the intact skin; upon denuded surfaces it produces a not unpleasant sensation of moderate heat which is of brief duration. It stimulates the digestive functions; it is sedative to the nervous system, and is eliminated by the kidneys and respiratory organs. In cases of chronic bronchitis with muco-purulent expectoration, in catarrhal asthma and dilatation of the bronchi it has been successfully given in doses of two and a half grains five or six times daily. It effect upon digestion has been stimulating, and no unpleasant symptoms have attended its use.—*L'Abeille Médicale*, December 20, 1886.

THE EFFECT OF RETAINED MEMBRANES ON THE PUERPERAL STATE.—DR. FISCHER, of Professor Slavianski's clinic, writing in a recent number of the *Vrach*, gives the result of a number of observations made for the purpose of testing the commonly received view that portions of membrane retained in the uterus after the expulsion of the placenta are liable to produce serious consequences—as hemorrhage and especially the so-called auto-infection or septicæmia—and that, therefore, it is of the utmost importance that they should be removed by the hand or by intrauterine injections. This view is supported by the authority of Winkel, Dohrn, Ahlfeld, and others; while Olshausen, Credé, Weiss, and Landau consider that there is little harm in the retention of even considerable portions of the chorion. Dr. Fischer's observations extended over 682 labors, in each of which he carefully examined the after-birth. In forty-two of these cases (*i. e.*, 6.2 per cent.) a portion of the chorion was retained. Credé's method of manipulating the fundus uteri gave the best results regarding the percentage of retention. In primiparæ retention was nearly twice as frequent as in multiparæ, the percentage being 9.1 and 4.9 respectively. Some effect appeared to be exerted by the time at which the rupture of the amnion took place, which, when either too early or too late, seemed to predispose to retention. Premature deliveries also were rather more frequently followed by retention than those at term. As a rule, the retained chorion came away in the course of from four to six days, generally in several small portions, sometimes, however, in fragments of considerable size, and in one case, where three-quarters of the chorion had been retained, it was passed entire on the fifth day without having caused either hemorrhage or sepsis. Amongst the forty-two cases hemorrhage occurred only four times, and was always easily arrested either by hot irrigation or by ergot and manipulation of the uterus. When, however, we learn that out of the forty-two cases manual extraction of the fœtus was required seven times, and that a considerable loss of blood occurred during the third stage eléven times, four cases of slight post-partum hemorrhage do not appear at all excessive. With regard to pyrexia, in twenty cases, or 47.6 per cent., there was none; in twelve, or 28.6 per cent., the thermometer, which was always used thrice a day, once registered a rise above normal; and in ten, or 24.8 per cent., there was more or less pyrexia. In order to compare these with cases in general, Dr. Fischer gives the results of similar observations made on all the cases he has attended for the last two years. These show that there was no pyrexia in 58 per cent., that the temperature was only once above normal in 17.6 per cent., and that there was pyrexia in 24.4 per cent.; so that the ratio of appreciable pyrexia was about the same in the cases in which retention occurred as in ordinary cases. A slight amount of endometritis occurred in three out of the forty-two cases. Dr. Fischer concludes from his observations that there is no ground for supposing that retention of fragments of membrane gives rise to "auto-infection," and considers that the commonly received view is fraught with danger, inasmuch as it tempts the accoucheur, when sepsis occurs, to throw the blame, not on himself, as he ought to do, but on some fancied auto-infective process, and this probably prevents his being as particular as he should be in employing antiseptic methods in the management of the labors he has to attend.

COCAINE IN LABOR.—DR. HERTZHORNE recommends (*Lancet*) the use of a compound of six parts of cocaine, twenty-four of vaseline, and twenty of glycerine, to be applied to the parturient canal during the second stage of labor for the purpose of producing anæsthesia of the parts, and so vastly lessening the pain incident to that stage.

FORMULÆ APPLICABLE TO THE TREATMENT OF VARIOUS FORMS OF GOUTY DIATHESIS.—In the treatment of gout of long standing, without complications, VIGIER employs the following to prevent relapses:

℞.—Lithii carbonat. . . . . ʒijss.
Extr. gentian. . . . . ℈iv.—M.
Ft. pil. c. in num.
Sig.—One pill after each meal.

When gout is complicated with nephritic colic, it is well to replace the carbonate with the benzoate of lithium as follows:

℞.—Lithii benzoat. . . . . ʒijss.
Extr. gentian. . . . . ℈vss.—M.
Ft. pil. c. in num.
Sig.—One pill morning and evening.

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In chronic gout, with calcareous concretions about the joints, iodide of sodium or potassium should be associated with lithium as follows:

℞.—Lithii carbonat. . . . ℥ijss.
Sodii iodid. sicc. . . . ℥ijss.
Extr. gentian.,
Gum. acac. pulv. . . . āā ℥ss.
Glycyrrhizæ pulv. . . . ℈v.—M.
Ft. pil. c. in num.
Keep in tightly corked bottle.
Sig.—One pill after each meal.

Also the following:

℞.—Lithii carbonat.,
Potass. iodid. . . . . āā ℥ijss.
Gum. acac. pulv. . . . ℥ss.
Extr. gentian. . . . . ℈iijss.—M.
Ft. pil. c. in num.
Sig.—One pill after each meal.

Iodide of sodium being deliquescent, the powdered licorice, indispensable in the former, is not needed in the latter formula.—*Gazette Hebdom. de Méd. et de Chirurgie*, December 31, 1886.

ACTION OF DRUGS IN ALBUMINURIA.—An interesting communication on this subject was read in the Section of Therapeutics at the Brighton meeting of the British Medical Association by Dr. Robert Saundby. He pointed out the difficulty of foretelling what action drugs might possess on the renal processes in genuine albuminuria. The number of drugs with which he experimented was very large. The following are his chief conclusions: Alkalies used in the form of diluents—such as a quart of bitartrate of potash imperial (one ounce and a half to a pint), daily—gave distinctly favorable results in cases of chronic persistent and copious albuminuria. He has employed, also, citrate of lithia, bicarbonate of potash, ammonic benzoate, and bicarbonate of soda, and includes them in the favorable opinion. The beneficial effect was not due to the formation of alkali-albumen, for Esbach's fluid, which was the method employed, precipitates that form of albumen. Tannate of soda, or rather an ounce mixture of tannic acid and bicarbonate of soda, of each ten grains, with fifteen minims of glycerine, also gave good results. In one case the albuminuria was diminished nearly one-half. Nitroglycerine and fuchsin appeared to have no good effect. Digitalis and other heart tonics—caffeine, strophantus, sulphate of sparteine, iron salts, acetate, sulphate, and perchloride—increase the amount of albumen passed. Apocynum was not found to have any diuretic action in drachm doses of the tincture, and it increased the albumen in two cases. Turpentine had no beneficial effect, though hæmaturia followed its employment in one minim doses. Doses of the 1000th of a grain of bichloride of mercury were also inoperative.—*Lancet*, December 25, 1886.

UTERINE CANCER IN PREGNANCY AND PARTURITION.—BAR, of Paris, has found that cancer of the cervix is greatly influenced by pregnancy; the pain and hemorrhage, its growth and extension to neighboring organs, and the cachexia caused by cancer are all so greatly increased that death may occur before the end of pregnancy.

Cancer often produces abortion.

The presence of a neoplasm in the cervix uteri, and the abnormal resistance of the tissues, with the uterine inertia, are a frequent cause for the prolongation of labor in these conditions; this delay may continue fifteen or eighteen hours, and cause the death of mother and child. Premature labor generally occurs very readily.

The diagnosis of pregnancy is made difficult in many cases by cancer. The prognosis is very grave, and the death of the mother is, sooner or later, inevitable. Regarding treatment Bar counsels palliation, and deprecates abortion and premature birth, which give no certain benefit to the mother.

Amputation of the uterine neck induces labor in only a portion of the cases so treated; the author had but one death after the operation, and no cures; a palliation of distressing symptoms was observed in a large number of cases, but parturition was complicated by the presence of cicatricial tissue; vaginal or abdominal hysterectomy is not commended.

At parturition, when the cervix is not dilated and the child is living, it is best to wait, and when grave dangers threaten perform Cæsarean section. If the child is dead it is still best to wait, the justifiable interferences being Cæsarean section or embryotomy with forcible extraction.

When dilatation has begun, but is incomplete, and the child lives, the use of Barnes's dilators and the excision of the tumor, if it is not too large, are recommended. If labor must be rapidly terminated the Cæsarean section must be made in case of uterine rupture or very large tumor; when dilatation can be effected by incisions the forceps or the ablation of the tumor may permit the birth of a living child. If the child is dead, the performance of embryotomy is indicated.

Premature labor will be generally easy, as the small size of the child will permit its extraction by the natural channels.—*Revue de Chirurgie*, November 10, 1886.

TREATMENT OE ECZEMATOUS OTITIS.—MIOT, in moist eczema, orders the injection, twice daily, of a portion of the following:

Sodii bicarb. . . . . ℈iv.
Aquæ picis . . . . . Oij.

Morning and evening an application of the following by means of a bandage:

Acid. pyrogallic. . . . . ℥ijss.
Vaselinæ . . . . . ℥xij.
Sulph. sublim. . . . . ℈ijss.
Alcohol. camphorat. . . . . ℥ss.
Chloral hydrat. . . . . gr. xv.

Two or three times weekly the free application of this mixture:

Tinct. iodin. . . . . ℥ss.
Glycerinæ,
Aquæ . . . . . āā ℈iijss.
Potass. iodid. . . . . gr. viij.
Tinct. opii (Sydenham) . . . ℥ss.

In dry eczema, the author recommends the following pomade once or twice daily:

Hydrarg. sulphat. flav. . . . gr. iv.
Vaselinæ . . . . . ℥iv.

Les Nouveaux Remèdes, December 24, 1886.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL

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THE TREATMENT OF SYPHILIS.

THE great obstacle to unanimity in regard to the proper treatment of syphilis, is the fact that a number of recognized authorities differ in regard to its nature. It is well known that the great majority of those who have made a special study of this disease are dualists, and would separate clinically all cases in which subsequent manifestations warrant the opinion that a venereal sore was a syphilitic sore, from those in which no such manifestations arise. Others, among whom Mr. Jonathan Hutchinson is conspicuously eminent, still use a nomenclature which is founded upon a not unusual similarity of appearance in different venereal sores, and which ignores their different results. As we share entirely the scientific opinions indicated by the term dualism, we feel regret that the theoretical views of unicists should so often seem to obscure the practical results which might be gained from a more exact, and, we believe, more correct way of studying the clinical history of syphilis.

The question whether or not mercury is to be regarded as a true antidote to syphilis cannot, we think, be decided so long as unicists claim that it is so because later evidences of syphilis do not follow when mercury is given in cases which they call syphilitic and which dualists deny to be so. The latest evidence of this fact is furnished in a most sensible and temperate paper by DRYSDALE, in the *British Medical Journal*. The opinions of Solly, Erichsen, Hutchinson, and Henry Lee, that mercury may effect an early cure of syphilis are cited, and are met by the opposite opinions of Lancereaux, Diday, and Fournier. To these we may add that of Sigmund, who, before his death, came to the conclusion that the part played by mercury as an antidote to syphilis is not very important, and attributed more and more importance to the effect of general tonic and strengthening measures. Some years ago, Tasenson published a valuable book on the treatment of syphilis in which he assigned the first place to tonic treatment, and placed treatment by so-called specifics in a decidedly subordinate position. The opinion in this country seems to be very much that entertained by Sigmund toward the end of his career, and a reason for it may be found in the demonstration by Keyes that mercury in moderate doses is a decided hæmic reconstructive.

It may be asserted, without fear of contradiction, that mercury administered in cases that are indubitably syphilitic, in the view of dualists, cannot be expected to cut short the disease. It cannot be denied that, when properly used, it exerts a beneficial influence upon the course of the disease, and that it is probably the drug most universally suitable to its treatment; but we cannot understand how anyone of large experience and of a critical mind can assert that it is an antidote to syphilis. Even when it is most judiciously used late lesions may show that it certainly has not acted as an antidote, and the fact that in a number of cases in which it is used no such accidents occur is offset by the fact that in many cases they would not occur at any rate. This is so true that there is a constantly growing conviction that syphilis is a self-limiting disease, which, under favorable conditions, tends to a spontaneous cure. This conviction was plainly expressed by Sigmund, and it must be given its due weight in discussing the claims of any special method of treating this disease.

CORROSIVE SUBLIMATE IN TYPHOID FEVER.

AT the present time, when the specific fevers are believed to be due to the presence of microörganisms, it is not surprising that various plans of antiseptic treatment are advanced. The trials and suggestions are in every way praiseworthy, as it is quite possible that we are on the eve of important therapeutic advances in this direction. The problem would be readily solved could we deal with the vital fluids as we can with solutions in the laboratory, but the great difficulty is to find remedies which will neutralize or destroy the specific agents, without, at the same time, acting injuriously upon the tissues of the body.

Typhoid fever seems, in many respects, to be the most suitable disease in which to test antiseptic plans of treatment, and various remedies have been used with, so far, doubtful success. Carbolic acid and iodine, of which we heard so much a few years ago, seem no longer in favor. In the remarkable revival of the use of mercury in acute diseases it is natural that certain of its preparations, which have

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powerful antiseptic properties, should come into vogue, and we find that in Germany corrosive sublimate is being extensively tried.

GREIFFENBERGER, in *Berliner klin. Wochenschrift*, 1885, reported forty cases, without a death, under the use of sublimate, and claimed that it rapidly reduced the fever, and improved the general condition. At the Hamburg General Hospital, Gläser has tested the method very fully, and published his observations in *Deutsches Archiv f. klin. Med.*, Bd. xl., the general result being expressed in the title of the communication. *The sublimate treatment appears to be without influence in typhoid.* He denies that in safe doses there can be any question of parasiticide action, as the degree of dilution in the fluids of the body is too great. Twenty-three cases were treated, of which five died. In only four cases did the temperature sink to normal before the nineteenth day; in six cases from the twentieth to the twenty-third, and in eight cases defervescence was still later. The state of the tongue was not affected, the general condition of the patients not materially bettered, and neither the duration of the disease nor the tendency to relapse in any way influenced. The paper is accompanied by elaborate tables, illustrating the daily progress of the cases.

ACTINOMYCOSIS HOMINIS.

WE have already referred in THE NEWS of October 16, 1886, to Israel's important monograph on the clinical features of actinomycosis. Since the attention of the profession has been directed to the subject, the reports of cases are becoming more frequent, and there have been several new cases in the western States, where the disease has been known for some years in cattle. In the *American Journal of the Medical Sciences* for January, 1887, SKERRITT reports a very remarkable case, in which the fungus invaded the liver through the lung. The patient, a man, aged twenty-eight years, had been failing in health for three months, with loss of flesh and strength, and three weeks before admission to the hospital had acute pain under the right costal cartilages. There was irregular fever, with signs of moderate effusion into the left pleura, but on aspiration only a small amount of fluid was obtained. During the second month in the hospital the features of the case suggested phthisis, but the copious sputa gave no indications. These symptoms subsided, and the lung seemed to clear except at the base in front and behind. Subsequently rigors and colliquative sweats became marked, and the patient died of exhaustion sixteen weeks after admission. Fibroid induration was found at the base of the right lung, with intimate adhesion to the diaphragm, immediately below which, in the substance of the right lobe, was a yellowish-white mass, three inches in diameter, composed of a fibrous stroma, in the loculi of which were the characteristic actinomyces tufts. The case affords a striking illustration of the migration of the fungi, for, no doubt, the lung was first involved, then the pleura, and, subsequently, the liver, through the diaphragm.

THE UNIVERSITY OF WESTMINSTER.

THE London schools of medicine have, at last, the prospect of the establishment of an institution at which their pupils can obtain a degree in medicine. The great majority of students have now to be content with the license of the College of Physicians, the membership of the College of Surgeons, or the license of the Society of Apothecaries, as the requirements for graduation at the London University are so stringent that only a small number of the best men can possibly conform to them. At the Scotch schools, on the other hand, the M.D. is, as with us, the usual conclusion of a course in medicine. In Great Britain the possession of a university degree counts for much in practice, and the London students have naturally felt aggrieved, and the schools have been seriously handicapped in the competition with the Scotch universities. It is proposed that the Colleges of Physicians and Surgeons should unite, and obtain from Parliament the power to confer a degree after examinations the equivalent of those which the student has now to pass for the diploma of the College of Physicians or the College of Surgeons. It is suggested that the new examining body be known as the University of Westminster. There will be difficulties in carrying out the scheme, particularly if the two Royal Colleges persist in denying to the Society of Apothecaries the right of participation in the new institution.

THE progress of our knowledge with reference to the etiology of infectious diseases has been so rapid during the past three or four years that it is difficult for one who does not devote himself especially to bacteriological studies to keep pace with it. This is largely due to the fact that many of the monographs in which the results of extended experimental researches are given, are published in journals which, in this country at least, are scarcely known, and are only to be found in the library of the Surgeon-General's Office. We have an excellent annual *résumé* of the work of the year in this department of knowledge in the *Jahresbericht* of Baumgarten, first published in 1855. But so great is the interest in this fundamental branch of medical science that, in Germany at least, the want has been felt of a periodical devoted exclusively to bacteriology, which might give at frequent intervals a synopsis of all important papers published in the various lan-

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guages of Europe. As Germany has taken the lead in this field of investigation, it is not surprising that the first announcement of a weekly journal of bacteriology should come from that country, and, indeed, it is doubtful whether such an enterprise could be sustained elsewhere.

The new journal to which we have reference is published in Jena by Gustav Fischer, and is under the editorial management of Dr. O. Uhlworm, of Cassel, assisted by Prof. Leuckart, of Leipzig, and Dr. Löffler, of Berlin. These names suffice to establish, in advance the character of the journal, which will be known as the *Centralblatt für Bacteriologie und Parazitenkunde*. The names of many well-known workers in this field of investigation, from the various countries of Europe, appear as co-laborers, and through these *Mitarbeiters* the editors hope to receive promptly copies of all papers of value published in the various countries in which bacteriological studies are pursued, for the purpose of publishing abstracts or editorial notices. Dr. G. M. Sternberg has been requested to act as "co-laborer" in this country, and will forward to the editors reprints of papers of value, in which original researches are recorded. The authors of such papers in the United States or Canada are requested to send duplicate copies, when practicable, to Dr. Sternberg, Johns Hopkins University, Baltimore, Md.

IN THE MEDICAL NEWS of December 4, 1886, attention was called to certain dangers arising from the use of water-gas. The justification of this warning is to be found in the recent events in Troy, N. Y. On the 5th instant twelve persons in four different houses were alarmingly prostrated by an escape of this gas. On the 17th instant thirty persons were similarly affected; of these three have died, and several are still seriously ill. The gas is made by the Lowe water-gas process, is absolutely odorless, and contains nearly thirty per cent. of carbonic oxide. Pending further investigation its manufacture has been prohibited by the Troy Board of Health.

We shall present to our readers at an early day a full report of the medical history of these cases.

THE Surgeon-General of the Army, in his annual report to the Secretary of War, recommends that authority be granted by Congress for the printing of the catalogue of the Army Medical Museum, which, with proper illustrations, it is calculated, would make three large volumes, and would be of great value to the profession and to the Museum.

A LAW which shall make the disinfection of rags compulsory before they find their way into the hands of the workers in our paper mills is urgently called for by the outbreaks of infectious diseases which from time to time occur among such persons. The village of Ivybridge, which has several times suffered from epidemics of smallpox conveyed by this means, was, according to the *British Medical Journal*, the scene of a fresh outbreak on December 11th. Three girls, similarly employed, were attacked on the same day, and the local board of the village has decided to erect a building to be used as a hospital for such cases. We believe that rags are frequently disinfected by the owners of paper mills, but until it becomes a compulsory enactment the danger will continue.

THE Library of the Surgeon-General's Office contained at the close of the last fiscal year, June 30, 1886:

	Volumes.
Medical journals	24,116
Medical society transactions	3,532
Bound theses	1,385
Bound pamphlets	1,331
Other medical books	46,368
Total	76,732
Unbound medical theses	42,212
Unbound medical pamphlets	64,419
Total	106,631

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH, in reply to a communication from the London police authorities, have recommended the adoption of the following method of disinfection of cabs: The cushion and as much of the internal fittings as are movable should be taken out of the cab and put in a disinfecting oven, where such is available; if there is no disinfecting chamber, the cushions, after having been taken out, if movable, well beaten and dusted, should be replaced, putting them on end so as to expose both surfaces to the action of the chlorine gas which is subsequently used. All exposed woodwork on the inside of the cab should be washed with carbolic acid soap; and carbolized oil should be smeared over the metal work, with the view of disinfecting it, and protecting it from the action of the chlorine. Chlorine gas should be evolved inside the cab, and the cab shut up and kept exposed to the fumes for one hour.

J. J. CHISOLM, M.D., of Baltimore, Md., has been appointed President of the Section of Ophthalmology of the Ninth International Medical Congress, in the place of Dr. E. Williams, who was compelled to resign on account of ill health. Judson B. Andrews, M.D., Superintendent of the Hospital for the Insane, Buffalo, N. Y., has been appointed to the office of President of the Section of Psycho-

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logical Medicine and Nervous Diseases, made vacant by the recent death of Dr. John P. Gray.

IN Great Britain, during the past year, 5210 new books, or new editions, were published; of these 755 were novels, and 616 were books on theology. The total number of medical and surgical works was but 114, and of new editions 57; this is, of course, exclusive of medical periodicals and serials in volumes, which number altogether 291. Small as the number of medical books appears in comparison with that of works of fiction or theology, it is relatively enormous in comparison with new books on law and jurisprudence, of which there were but 18, and only 16 new editions during the year.

THE 81st Annual Meeting of the Medical Society of the State of New York will be held at Albany on February 1st, 2d, and 3d, under the presidency of Dr. William S. Ely, of Rochester. The preliminary programme, just issued, gives promise of a most interesting meeting.

THE first course of the Middleton Goldsmith lectures, will be given by Dr. M. Allen Starr at the hall of the College of Physicians and Surgeons, of New York, on the evenings of January 25th and 28th. The subject is multiple neuritis, and its relations to peripheral neuroses. The lectures were recently founded by Dr. Middleton Goldsmith, of Rutland, Vermont, and are given under the auspices of the New York Pathological Society.

THE publication of the third medical volume, the last of the series comprising the *Medical and Surgical History of the War*, has been delayed by the pressure of current work at the Government Printing Office. The completed manuscript was ready for the press in February last, but scarcely a fourth of it is yet in type.

DR. DEAVER, last week, removed the right kidney from a patient at the German Hospital in this city. One week after the operation the case was doing well.

MEASLES seems to be greatly on the increase in New York. Cases are now reported to the Board of Health at the rate of 100 a day, and the indications are that the total for the past week will be over 700, an increase of over 200 on the figures for the preceding week. There are many cases in public and private schools and charitable institutions, and it is probable that there is not an institution in the city in which children are collected in which the disease is not more or less prevalent.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, December 22, 1886.

DR. L. A. STIMSON IN THE CHAIR.

STRICTURE OF THE ŒSOPHAGUS.

DR. SANDS presented a patient eleven years old, whom he had treated for a cicatricial stricture of the œsophagus more than three years previously, and whose case he had made the subject of a paper read before the Society, January 22, 1884. (See THE MEDICAL NEWS, February 9, 1884.) As she was now on a visit to New York he availed himself of the privilege of showing her to the members, and of demonstrating the passage of large bougies through the œsophagus at the site of the former stricture which, when the patient first came under his notice, was so small that only instruments of filiform size could be introduced. After a number of operations of internal œsophagotomy had been performed, however, the child left New York in November, 1883, entirely relieved of dysphagia, and into the stomach a bougie, No. 40 F, could be readily passed. When her case was related before the Society some doubt was naturally felt regarding the duration of the improvement, which, it was believed, would be only temporary. Dr. Sands was therefore interested in stating certain facts connected with her past and present condition. After the cutting operations were discontinued, the patency of the œsophagus was tested with bougies at intervals of increasing length, until May, 1886.

Between that date and October, 1886, a period of seventeen months, no instrument was used; and when, at the end of that time, the calibre of the œsophagus was examined, bougie No. 40 could be readily passed beyond the site of the former stricture. Within the past week Dr. Sands had introduced a bougie of that size, and he demonstrated before the Society the easy passage of a bougie No. 38 F. No. 40 was not tried, because the patient did not wish to have so large an instrument employed, as it caused discomfort when passing behind the cricoid cartilage.

Dr. Sands remarked that he attributed the long absence of recontraction to the shortness of the stricture, as well as to its complete division. He hoped that the cure would prove permanent. The patient's health had for a long time past been excellent, and no difficulty was experienced in swallowing solid food.

DR. SANDS presented a patient from whom he had

REMOVED A NASO-PHARYNGEAL POLYPUS BY MEANS OF THE GALVANIC ÉCRASEUR,

and read the following account of the case, which had been copied from the records of Roosevelt Hospital:

Henry Robinson, aged eighteen, Irish, single, laborer, admitted October 26, 1886, family history negative. Had always had good health. Gave no history of phthisis, Bright's disease, or rheumatism. For ten or twelve years patient had had a thick, difficult enunciation, but this trouble had made no noticeable progress. His other symptoms were all of recent date, beginning with a cold caught ten months ago. After this he had much difficulty in breathing through the nose; eight months ago

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the patient had a slight hemorrhage from the nose which was easily stopped; but four months afterward a more severe bleeding began, and lasted a week, occurring three or four times a day. Since then, talking and breathing had been much worse.

On admission, patient was a large, strong-looking young man, but appeared rather anæmic. Examination of the pharynx showed a round, smooth mass pendant from the posterior nares and projecting into the upper part of the pharynx. It was slightly visible beneath the free border of the soft palate when the mouth was well opened. It could be easily felt by the finger, and was found to be of a rather soft and compressible character. The finger could be passed without difficulty in front of and behind it, showing that no adhesion existed and that the probable origin was from in front of the foramen lacerum medium. Examination through the anterior nares showed that only the left side was wider. The growth was not seen from this direction. Patient had no discharge from the nose, and was chiefly inconvenienced by the obstruction to breathing. Urine: Amber colored, alkaline, 1.033; five per cent. albumen; phosphates; ammonium urates.

Treatment: *28th.* Ordered Blaud's pills (gr. vj) ij t. i. d. *30th.* Ordered compressed oxygen by inhalation. *Nov. 3.* A wire was easily passed through the left nostril into the mouth and made to surround the new growth.

6th. Cocaine anæsthesia; operation: A copper wire was introduced through the left nostril and brought out through the mouth. To this the end of a platinum loop was connected and passed back again. The platinum being brought out of the nostril, care was taken that these wires did not cross. The loop was then adjusted about the polypus and drawn up tightly, and its free ends passed through the handle of a galvano-cautery, which, in turn, was pressed as far as possible through the left nostril toward the posterior nares. The connections were then established and a fair current of electricity was passed over the platinum wire, heating it to a red heat. Just before the current was applied, a strong silk suture was passed through the bottom of the polypus by a curved needle, so that traction might be made on the tumor from below, and that it might be prevented from slipping out of reach when the pedicle should be divided.

The operation was rather slow (six minutes being required), and during this time there was a good deal of bleeding, and the patient seemed to suffer pain. At last the pedicle was divided, and the tumor drawn out of the mouth. The bleeding then ceased and did not recur. The pain also did not continue. The polypus was half the size of an egg (circ. 1½ in. x 1¼ in. in diameter). The pedicle had been very evenly removed close to the body of the tumor.

4th. Patient had no bleeding after the operation, and no pain.

9th. Patient had no bleeding at all, but has a slight nasal catarrh. Discharged cured.

Microscopical examination by Dr. Delafield showed it to be a polypoid fibroma.

His object in bringing the patient before the Society was mainly to emphasize the fact that very few cases of nasal pharyngeal polypus are suitable for treatment with the galvano-cautery. The method, which dated back to the time of Mitteldorf and his followers, has been practised often enough to prove its value; but, as most nasal pharyngeal polypi are attached to the skull by a broad band, and cannot be embraced by a loop of wire, this safe and easy method of operation is inapplicable. There was no difficulty in handling the pedicle.

DR. PETERS said he had operated on several naso-pharyngeal polypi, but had never seen one with a narrow stem like that presented by Dr. Sands.

DR. LANGE presented a specimen removed from a patient suffering from cancer of the tongue; the history being as follows:

EXTIRPATION OF TONGUE, FLOOR OF MOUTH, AND SUBMAXILLA FOR CANCER.

A very vigorous and otherwise well-preserved and healthy gentleman consulted me for a cancerous disease which had taken its origin from a fold between the margin of the tongue and the floor of the mouth on the right side, and though not presenting, to a great extent, superficial ulceration, had infiltrated the soft parts toward the base of the tongue and in the suprahyoid region. An extensive glandular infiltration on the right side likewise existed, and some enlarged glands were found in the left submaxillary region. About four months previously pharyngeal symptoms had appeared, and lately the sufferings had become very severe. The main source of trouble to the patient was a constant, abundant salivation, which had been hardly influenced by the division of the lingual nerve by another surgeon some time before.

The patient wanted to be relieved at all hazards, and though the operation had been refused by a most competent surgeon of this city, I decided to do it for the following consideration:

Supposing it to be possible to form, after the very extensive loss of tissue to be expected in consequence of the operation, a new floor of the mouth by a plastic operation, so that healthy mucous membranes were turned against the oral cavity, and the wounded surface excluded, we might avert the principal danger after these operations, those of repair and "Schluck pneumonie." The part of the horizontal ramus of the jaw adjacent to the tumor had to come away, and the operation was done in the following way: After preliminary tracheotomy, the contents of the submaxillary fossa on the left side were removed first, and the lingual and external maxillary arteries tied. A corresponding incision was then made on the opposite side and the infiltrated portion of tissue laid bare. The right half of the hyoid bone had to be resected also. Then after cutting through the lower lips corresponding to the dental fossæ the soft parts, including the periosteum, were removed from the external surface of the horizontal ramus of the jaw, and that portion of bone removed. I then had very free access to the diseased parts, and after tying the lingual and external maxillary arteries, the most of diseased tissue down to the epiglottis and hyoid bone could be rapidly removed with only very little loss of blood. So far, the patient had borne the operation very well. He had suffered no excessive loss of blood, his pulse was good, respiration very quiet, the trachea acting very well.

The mucous membrane of the left half of the floor of the mouth had been purposely preserved, and I now

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tried to unite the edge of it to the mucous membrane of the external surface of the removed alveolar process. In this attempt I encountered tension corresponding to the base of the tongue, the parts of the right side not yielding sufficiently on account of the ascending portion of the jaw still being present. This, therefore, had to be removed, and it seemed to me as if the unavoidable manipulations connected with this act of the operation, and probably the irritation at the inferior maxillary nerve caused by it, contributed to a rather sudden deterioration of the pulse and appearance of the patient. After the artificial floor of the mouth had been formed, the external wounds were left open and loosely packed with gauze. I intended to do on the second or third day a secondary suture. The tracheal tampon tube was replaced by the usual tracheotomy tube. The patient rallied well after the operation. He had a fair pulse of about 112, became conscious, and expressed his satisfaction at the operation being over.

When I came to the hospital on the following day, the man had died rather suddenly. The temperature had risen to 107° and after a short period of unconsciousness he had expired. After the operation I had placed a soft rubber catheter through his nostril into the upper jaw to avoid deglutition into the trachea. An autopsy was refused, and I am at a loss to say what was the real cause of death. It may have been a very acute pneumonia or nephritis, which I have observed in a few cases after protracted ether narcosis. Possibly the disintegration, by ether, of a large portion of the red blood-corpuscles may have set free so much blood ferment as to account for the sudden change.

The operation as done in this case lasted certainly too long, but I think it would be much shortened by first tying the external carotid on one or both sides. The perpetual cutting through bleeding vessels which have to be tied is, indeed, the main source of the dangerous prolongation.

In spite of the unfavorable result in this case I should follow the above plan in a similar case, while, on the other hand, I freely admit that such a risky undertaking in regard to the best results that can be achieved, can only be justified by the miserable outlook which the patient will have if nothing is done. In a further case I should also carefully keep the tracheal tamponade for some time after the operation. It struck me during the operation that by sewing up the posterior part of the floor of the mouth the epiglottis was somewhat drawn forward and the entrance to the larynx widely opened.

DR. LANGE also presented the specimen from a case of

VAGINAL EXTIRPATION OF CARCINOMATOUS UTERUS; RECOVERY.

His patient was a married woman about fifty-five years of age, in whom a far-progressed cancerous disease was detected shortly before the operation on account of obstinate hemorrhage. The operation was done after Morton's method, and was attended with a great deal of difficulty on account of the broad inversion of the supra-vaginal tissues in Douglas's wall as well as toward the parametria, both of which, especially on the right side, were already somewhat affected. Coarse silk was used for all the preliminary ligations. Though some of the offensive contents of the uterine cavity, which, in spite of free irrigation, could not thoroughly be cleansed, had escaped during the operation into Douglas's space, no peritonitis followed, the after-treatment being the open antiseptic treatment with iodoform gauze used against the wound surface. The patient made a good and comparatively rapid recovery, so that six weeks after operation she could be discharged with only a small granulating surface at the end of the vagina. Though the prognosis with regard to the probable early recurrence of the disease is not flattering, still the patient has been benefited by the operation. She has picked up in strength and her life, at all events, will be prolonged and made more tolerable. The cancerous affection includes the whole cervix and the infiltration reached somewhat above the internal orifice. The ovaries and tubes were left. Thiersch's spindle with handle proved to be a very useful instrument in this case also.

DR. H. B. SANDS read a paper on the

USE AND ABUSE OF PASSIVE MOTION.

(See page 85.)

DR. YALE remarked that there were so many interesting topics raised in Dr. Sands's paper it would be difficult to discuss them fully, but the speaker considered the use of hot water in sprains of great value, gradually raising the temperature of the water as hot as it could be borne, and afterward applying compression. This he found would alleviate the pain in many cases where the injury did not involve the bony part. The cases he considered most likely to suffer ankylosis from enforced rest are those arising from gonorrhœal rheumatism, and similar pseudo-pyæmic affections, as in such patients ankylosis more or less severe occurs quite frequently. In the majority of cases of ankylosis he had found that after the adhesions had been broken up and the acute symptoms subsided, good motion is generally secured in the joint. But in those chronic cases of the kind alluded to he had often met with complete failure.

DR. BRIDDON said that the paper of Dr. Sands had thrown a ray of light on what the editor of the London *Lancet* had called a dark corner in the domain of surgery. The editorial referred to applied to papers published in that journal fifteen years ago by Dr. Wharton L. Hood, and subsequently issued in book form, under the title, "On Bone-setting (so-called) and its Relation to the Treatment of Joints Crippled by Injury, Rheumatism, Inflammation, etc.," a book from which he had culled much that was valuable and instructive. It was in return for services rendered to Mr. Hutton, the renowned bone-setter of Great Britain, that Dr. Hood was allowed to witness the procedures by which he certainly achieved many successes; in one portion of his book he refers to a communication made to him by Mr. Ponsonby in which the latter gentleman, in facetious but not flattering terms, refers to the treatment of a bad sprain by parboiling, and subsequently prolonged rest advised by two prominent surgeons and that was at last promptly cured by the manipulations of the "bone-setter." Dr. Peter Hood devised a treatment for sprained ankles that had given him more satisfaction than any other, strapping the whole foot and ankle with adhesive plasters and a firmly applied bandage arranged so as to prevent any stretching of the lacerated tendons, and changed every day.

Dr. Briddon desired to endorse the opinion of Dr.

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Sands with reference to the treatment of firm, fibrous ankylosis by forcible movements. He had succeeded in restoring function to some disabled limbs by such means but had more often failed. In the early part of the present year a lady was placed under his charge with a knee badly damaged by rheumatic arthritis. It was flexed, the head of the tibia displaced backward, and the leg rotated. There was a scarcely perceptible movement, and the patella was immovably fixed to the condyles. We had her under the full influence of ether and arranged on a stout table with all the advantages to be obtained by using the leg as a lever. It required all the force we could bring to bear before we succeeded in flexing and extending the limb to our satisfaction and the reports of the rending adhesions were truly alarming. On the following day there was no local elevation of temperature, but the parts were so sensitive that she would not permit him to touch the limb until she was placed under the influence of ether. For a month he made daily movements under the anæsthesia and then finding the same conditions as those present the day after the operation, the same sensitiveness and inability on the part of the patient to move the joint, he gave up in despair, and to prevent the return to a faulty condition, he immobilized it extended. In regard to passive movements in cases of fracture in the vicinity of the joints, referring especially to those in the neighborhood of or involving the elbow, and including the epiphyseal separations of children, he would say that he would not treat such unless he was allowed to make easy passive movements; in the early part of his career he saw so many stiff joints where the parts were kept uninterruptedly at rest, that he had since insisted on early gentle movements which could be done without materially disturbing the fracture.

DR. GEORGE A. PETERS said that he was in the habit of keeping the patient in bed when suffering from a severe sprain, and treating the injured part with hot water and compression. The speaker remarked that eighteen months ago a case came under his observation involving the knee-joint. Having heard so much talk of massage, he put a masseur under his own observation and the result was very satisfactory. He had since tried it in other cases with good effect, and was inclined to think with favor of thoroughly applied massage. In those cases of false ankylosis of joints, and fractures in their neighborhood, it has long been his practice, as soon as their union is firm, to put the patient under an anæsthetic and rupture them by strong manipulation. He has never had cause to regret such treatment and believes it to be preferable to the slower methods of passive motion, which the patient is prone to neglect on account of the pain occasioned.

With regard to passive motion in joints implicated with fracture extending into them, it is his practice to remove the dressing say after the fourth or fifth day and resort to very gentle motion. This he continues every second day or so until he is satisfied with the results obtained. One advantage, at least, of such treatment is that the apposition of fragments is good and deformity less likely to result.

Fractures of the bones of the forearm near the wrist he has long treated with two short anterior and posterior splints, neither of them extending down upon the hand; these being secured in place, the arm is carried in a sling, the hand allowed to hang loosely and the patient directed to use the hand and fingers as much as possible during the entire treatment. By this method he has secured results which are entirely satisfactory.

DR. POORE said that he had seen some eight or ten fractures of the elbow-joint in which passive motion was made early; but in one case no motion was made until the parts were healed and the dressings removed finally; in this case the result was excellent also. In regard to ankylosis, either bony or fibrous, he has seen great disasters follow attempts at motion; from his own experience he believes much good could not be secured at the hip-joint from manipulation, and that when it occurs at the knee-joint much improvement cannot be obtained, especially after suppurative disease.

DR. ABBE remarked that he must express strong objections to any motion that excites pain. He considers that this should limit the amount of passive motion, further motion being liable to start up some inflammatory trouble. The speaker considered voluntary motion on the part of the patient much better; in the elbow and shoulder-joint the patient will generally do this; and in six months can almost always get rid of plastic adhesions resulting from fractures. As to faulty ankylosis of the knee-joint following gonorrhœal inflammation, he had observed an article published by Dr. Barwell, in the *Lancet*, in which resection of the bone was advised in preference to violent rupture in order to secure an improved position. The speaker quoted a case in which he had assisted Dr. Weir, occurring in a woman whose knee was flexed at more than a right angle; the adhesions were broken up, and after a reasonable time the patient was taught to make passive motion. She drew the foot backward and forward by an elaborate apparatus devised for this purpose, but at the end of a year she had not gained much, and had started up meanwhile some inflammatory action, which caused great anxiety.

DR. BULL considered Dr. Sands's remarks very opportune. Some think it necessary after fractures to make passive motion at a certain time, and frequently inflict pain in so doing, which the speaker considered unnecesary. He thought the idea of passive motion at the end of three weeks in fracture of the patella wrong, as, if there be a fracture needing freedom from motion, it is this fracture. In his practice for the last ten years he has not allowed motion until the eighth week. In one or two cases, where motion had not been regained at the end of the eighteenth week, passive motion had been made under ether, and the joint liberated. Dr. Bull had met an instance of the advantage of the "faith cure" in a patient who would not submit to the manipulation he proposed. This woman, who had had a fractured patella, believed in the faith cure, and visited a "shrine" in Hoboken; she was told to kneel down; she complied, and heard something snap, and she afterward had a good knee. In fracture of the elbow-joint the speaker had felt but little hesitation about abandoning the old tradition "that passive motion was necessary." But in fractures opening into the joint he had made passive motion two or three times a week, and at the end of the fourth week the patient was treated with manipulation of the joint; better results had been secured by this means. He had also directed the patients to apply a hot poultice to the joint

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every night for two or three weeks, after commencing passive motion. Under this influence and their own manipulations stiffness soon disappeared. As time went on, the speaker was using less and less passive motion in his practice. He thought there should be some definite understanding on the point. He doubted if passive motion diminished stiffness permanently. In speaking of fracture of the wrist-joint Dr. Sands considered them a different class of cases, and in the average fracture, if kept at rest, the cure will not be attended with any stiffness; but he had always been in the habit of allowing the patient to move the wrist and fingers at the end of a week or ten days, and would advise this practice in order to prevent adhesions of the tendons. Dr. Bull remarked that Dr. Sands had referred to periarthritis in speaking of articular rheumatism of the shoulder-joint. In some few cases of laboring men he had forcibly ruptured the adhesions under ether and secured good results. In relation to passive motion in gonorrhœal ankylosis of the joints the results had not been satisfactory. In the treatment of sprains Dr. Sands had followed out the same method which the speaker considered the best. As to the use of hot water, he had not gained much from such applications, and would never use hot or cold water in the swelling of a fracture.

THE PRESIDENT remarked that his views were much the same as those of other members of the Society. He would like, however, specifically to add his testimony against early resort to passive motion. It was his opinion that the stiffness of the knee following fracture of the thigh was due in part to a coincident sprain of the joint; only in the joints of the fingers did he think immobilization was liable to cause persistent rigidity; and he, therefore, had considered it necessary in treating the upper extremity to make passive motion of the fingers at an early date. In relation to fractures in the neighborhood of the joints, in which the joint was not injured he had no apprehension of ankylosis, but when the joint is directly involved in the fracture there is reason to fear it, as a consequence of the change in the shape of the surface. One argument in support of early passive motion is that exuberant callus may be thereby moulded and shaped so that it will less impair the motion of the joint. Dr. Stimson thought this was purely theoretical and incapable of proof. His opinion was, that the exuberant growth of bone seen in children is due to the stripping up or irritation of the periosteum; and the quieter the joint is kept and the more complete the reduction of the displacement, the less the irritation of the periosteum. His treatment in fracture is to leave the parts quiet for three or four weeks, inspecting them once or twice a week to make sure that the fracture remains reduced, and occasionally changing the angle at which the joint is held. When the splints are removed the joint is always more or less stiff but its motion usually increases rapidly. In hospital cases it is not easy to speak positively as to ultimate results, as it is difficult to follow them up.

DR. SANDS said he was somewhat surprised to find that his views concerning passive motion resembled so closely those of his colleagues, as he had come prepared to hear that their experience had led them to form on many points opposite opinions. He drew attention to the frequency of ankylosis after fracture of the elbow, compared with the occurrence of stiffness following fracture involving the hip, the knee, and the ankle; and he was unable to explain the difference except by assuming that the complicated and bony structure of the elbow often interfered with proper reduction. He urged close attention to this point in the early management of the fracture. To put off what ought to be done at once, and to endeavor to prevent stiffness by employing passive motion, is a common and unfortunate delusion.

DR. PETERS, in reply to the inquiry whether the sprains of which he had spoken were severe, said that two of them were. The results of treatment of many were, however, very satisfactory, recovery having followed at an earlier period than usual.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, January 12, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. H. A. WILSON reported, for Dr. John B. Roberts,

A CASE OF SUPRAPUBIC LITHOTOMY,

followed by death from perforating ulcer of the stomach. The ease with which the suprapubic operation can be performed, due largely to the distention of the rectum and bladder by the fluid forced into them previous to making the first incision, was clearly demonstrated in this case. The facts that union of the bladder wound and early restoration of the functions of the bladder in regard to urination readily occur after the high operation for stone, and that wounding of the peritoneum is easily avoided, make this method of removing vesical calculi very satisfactory. The unfortunate death of the patient from disease of the stomach does not in any way vitiate the results of the operation; for, although the patient had not recovered sufficiently to be discharged from treatment, still the operation had effected the results which were sought.

THE PRESIDENT presented

A SERIES OF THREE EPITHELIAL OR PSEUDO-MEMBRANOUS CASTS OF THE TONSILS AND PALATINE FOLDS FROM A CASE OF DIPHTHERIA.

The patient was an adult, and had exhibited no symptoms of a constitutional infection. The local disease was limited to the tonsils and palate; one tonsil became parenchymatously enlarged, and underwent suppuration. The abscess was opened twice. At present there is an additional abscess in the upper portion of the palate. There has been no complication in the case, except from difficulty in deglutition, so great that for forty-eight hours the patient had to be nourished mainly by the rectum. Two days ago there was brought to Dr. Cohen a thin sheet of false membrane, which was an accurate mould of the tonsil and palatine fold. Yesterday a similar mass of desquamation, having much the same shape, was brought; and this morning a third mould had been thrown off. The appearance of the second cast closely resembles a cast of the interior of the larynx and trachea, and could readily have been mistaken therefor had there been any laryngeal complication. Manipulation, however, demonstrates that it has sheathed the tonsil and one of the palatine folds.

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The point to which particular attention is called is the physical resemblance of these patches to the desquamated epidermis in scarlatina.

CORRESPONDENCE.

ELECTRICITY IN THE TREATMENT OF COLD ABSCESSES.

To the Editor of THE MEDICAL NEWS,

SIR: In reading the editorial entitled "Injection of Ether and Iodoform into Cold Abscesses," recently published in your journal, it occurred to me that your readers might be interested in a phase of the subject little understood or discussed. I refer to the use of electricity in developing and curing cold abscesses. The subject was quite fully discussed by me in the *Medical Record*, September 21, 1878, in an article entitled "A New Method of Hastening the Suppuration of Acute and Strumous (Cold) Abscesses," and, so far as I know, was the first, and perhaps the last, contribution to literature upon that subject. It is simply referred to in our work on electricity; but since that time I have had a number of opportunities to verify the statements as originally made. Given a cold abscess, the persistent application of the faradic current is, according to my experience, quite sure to develop it, and render it fit for opening. The pus once evacuated, the cure soon becomes complete and permanent.

The activity of the suppurative process is influenced more or less by the physiological, chemical, and physical effects that are more especially within the province of galvanism, but it is the mechanical influence of the faradic current that most rapidly tends to hasten suppuration. It is a current of alternation, of to and fro motion, of constant closing and breaking. When it passes through the body, even when it produces no appreciable muscular contraction, it acts very much in the same way as gentle tapping, or pounding or rubbing on the tissues; and this gives passive exercise to all the deeper lying as well as the superficial tissues. We may believe that the molecules of the tissues are agitated by the passage of the current, as the particles of a bar of iron are moved by the influence of magnetization, or as bodies are expanded by heat. The numerous branch currents going to and fro act as so many shuttlecocks, keeping every atom in incessant disturbance. While it is in virtue in part of these phenomena that we obtain tonic and restorative effects in ordinarily vitalized tissue, we can readily understand how, when acting on parts where the destructive process has begun, they may act as excitants, and very materially accelerate the breaking down of tissue and the consequent formation of pus. In the cases of this kind that I have treated, the patients were not kept from their usual work during the application of the current, and only for a few days after the evacuation of the pus.

In one case an enlargement on the neck had existed for several years, which by surgeons, both here and abroad, had been diagnosticated as a "tumor." At one time the knife was suggested, and at another resolution by electrolysis. The patient coming under my care, a small trocar was introduced, and traces of pus found. Under daily application of the faradic current, continued through several weeks, the swelling greatly enlarged. I then made an incision, evacuating several ounces of pus. The wound healed quickly and kindly, and the so-called tumor, of course, rapidly disappeared.

A. D. ROCKWELL, M.D.

NEW YORK.

[1] Beard and Rockwell on Electricity, 5th ed., p. 176.

AGARICIN IN THE SWEATING OF PHTHISIS.

To the Editor of THE MEDICAL NEWS,

SIR: The article of Dr. Armistead Peter, in THE MEDICAL NEWS of January 8th, concerning the employment of agaric in the sweating of phthisis, reminds me that during my term of service at the Episcopal Hospital in 1885, I used *agaricin* extensively for this annoying symptom and with very satisfactory results. I prescribed it in doses of one-tenth grain with one grain of Dover powder, in pill, as recommended by Seifert, of Würzburg, who was, I believe, the first to use the drug.

Very respectfully,

FREDERICK P. HENRY, M.D.

PHILADELPHIA, Jan. 17, 1887.

AN ACCIDENT WITH ETHER.

To the Editor of THE MEDICAL NEWS,

SIR: In Dr. John H. Packard's article entitled "An Accident with the 'A.-C.-E.' Mixture," in THE MEDICAL NEWS of January 8, 1887, he quotes Reeve as saying that "Ether, in the human subject, may produce death as suddenly, as unexpectedly, and in the identical manner that chloroform does," and expresses his doubt as to the justice of Reeve's opinion, attributing fatal result in such cases to existing disease.

A case which occurred to me last May, and furnished me with an hour of anxiety never before suggested in twenty-four years' experience with ether—my preferred anæsthetic—may throw light on the possibility of death under ether.

The accident occurred to me while removing a small pyriform fibroid tumor from the cheek of a patient of Dr. E. P. Talley, of Moro, New Mexico. My patient was a Mexican, forty-five years old, tall, light, and active, weighing about one hundred and forty-five pounds. He could not bear odors of any sort—foul or agreeable, and he has had to avoid all alcoholic stimulants. I examined his heart and found it healthy and learned that he was not subject to attacks of faintness. He seemed very nervous and anxious, but desirous to be rid of his deformity. He took the last rites of his church over night and in the morning made his will, and in various ways discovered his peculiar nervous temperament. He was unable to eat any supper the preceding evening, and was told to eat no breakfast in the morning as the operation was fixed for 9 A.M.

Squibb's best ether was administered in a towel covered by a newspaper cone with its apex partially occluded with absorbent cotton. He took the ether readily, barely moving once or twice as if it were disagreeable, and in twenty minutes was wholly unconscious.

The tumor was easily removed within five minutes, and I was stanching the rather copious venous oozing when suddenly the oozing stopped, and at the same instant Dr. Talley exclaimed, "He has stopped breathing!" Heart and lungs had ceased their functions

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simultaneously. The face was pale; pupils not noted. At once I drew the man to a level, dashed cold water in his face and compressed his chest by spells, but there was no reaction. He seemed dead.

Ordering his body well surrounded with hot bottles and stones and plenty of blankets, I instituted systematically Sylvester's method of artificial respiration, several strong men taking turns at it. At each compression of the chest a dismal toy-dog squeak occurred at the larynx. Hypodermatic injections of fluid extract of digitalis and tincture of belladonna were given several times. At the end of half an hour he rallied a minute and vomited a little, but at once relapsed. Several times I listened to the heart and barely detected a feeble pulsation at the rate of ten or fifteen to the minute. Slapping the precordial region with a wet towel caused a deep inspiration, but the effect was only transient. We were thirty miles from any electric apparatus or nitrite of amyl. Artificial respiration was continued for a full hour when we were rewarded by a rather abrupt restoration of both heart and lungs to fair activity.

I gave in all thirty minims of the digitalis and forty of the belladonna. Upon his recovery we had twenty-four hours of mild digitalis poisoning to watch. Having always associated inversion of the body with chloroform poisoning, I inadvertently omitted its use in this instance, although the head was promptly lowered to a level with the rest of the body. It was easy afterward to regret not having given atropine and whiskey before the operation, but the recollection of the excessive nervousness caused in a recent case by these preliminaries had temporarily prejudiced me against them.

After the artificial respiration had proceeded a short time the muscles of the chest, shoulders, and arms became so stiff that manipulation was very difficult—painfully simulating *rigor mortis*. I had used about three and a half ounces of ether.

I may say in closing that there was no struggling, no vomiting before the accident, no cyanosis, no abnormal variation in pulse or respiration. I have no doubt the man would have died had we been a very little less active in striving to revive him.

In another similar case—while not forgetting inversion—I should especially depend upon the application of warmth and artificial respiration.

F. H. ATKINS, M.D.

LAS VEGAS, N. M., Jan. 12, 1887.

NEWS ITEMS.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—*The Boston Medical and Surgical Journal*, in commenting upon the recent centennial celebration of the College, says: "Such festivities represent something more than mere self-congratulation at the completion of a century, or than the gratification of an instinct for generous hospitality. They represent for Philadelphia an acknowledgment of the many advantages which have accrued to the medical profession and to the public from the existence and the prosperity of the College; to the stranger, who was within her gates, they should represent the wisdom and importance of founding and fostering similar institutions elsewhere.

"A suitable building where physicians of rival medical schools, of different views and different modes of practice may meet and discuss the questions of the day face to face on neutral ground; where medical societies may convene in proper halls surrounded by books, by a museum, by portraits of distinguished worthies of previous generations—such a building is needed in all our large cities. It should be under the control of a corporation representing the energy and the liberal intelligence of the medical profession in the community, of a body of men actuated by the spirit as well as the letter of the motto, 'Non sibi sed toti.'

"Such a corporation would exercise needed authority and would be often appealed to by a perplexed public in questions of State, of preventive medicine, and might even succeed to some extent in realizing the last clause of the comprehensive list of objects given for the foundation of Philadelphia's College, namely: 'The cultivation of order and uniformity in the practice of medicine.' New York has such an institution in process of development in the Academy of Medicine; in Boston the Medical Library Association offers the possibility of a similar evolution; but the College of Physicians of Philadelphia in its past history, its present organization and equipment is *facile princeps*, if not alone, among such institutions as we have pictured and would like to see flourishing in our large cities, especially in such as are centres of medical thought and education."

THE MASSACHUSETTS GENERAL HOSPITAL.—We learn that the trustees have decided to build a new ward, to be devoted to abdominal surgery. The details of its arrangement have not yet all been decided upon, being left largely to the judgment of the surgical staff, but the general idea is that of an operating theatre with beds attached. The foundation will soon be laid.

THE MEDICAL SIGNERS TO THE DECLARATION OF INDEPENDENCE.—The statement in the recent address of the President of the College of Physicians of Philadelphia, that Rush "was the only physician whose name is on that energetic arraignment of the Crown" (the Declaration of Independence) should not pass unchallenged. Josiah Bartlett, of New Hampshire, and Lyman Hall, of Georgia, were successful practising physicians; Oliver Wolcott, of Connecticut, studied for the profession.—*Boston Med. and Surg. Journal*, Jan. 13, 1887.

RETIREMENT OF PROFESSOR PAJOT.—On the 18th of December the pupils and friends of Prof. Pajot met to present his bust in bronze to the distinguished instructor on the occasion o his retirement and seventieth birthday. After Prof. Pajot had taken his farewell, Dr. Doléris expressed the regrets of his pupils, and M. Peyron, Director of Public Assistance, conveyed the congratulations and regrets of the administration.

MR. STUART C. CUMBERLAND, OF MIND-READING FAME, gives a very frank and rational account of his doings, in the December issue of the *Nineteenth Century*. As a child, his perceptions were unusually keen. But his career as a mind-reader began only six years ago. His first attempt was entirely impromptu, but was as successful as any afterward. The gift was present; and future practice made it only quicker and more delicate, but not more certain. At first Mr. Cumberland frankly confesses he was apt to imagine himself supernaturally

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endowed, but soon convinced himself that the whole thing is simply an ingenious and skilled interpretation of the unconscious movements of the subject. "Willing is either dragging or pushing," is the mind-reader's formula. "Distinct and intense apperception, fixed attention is incipient motion," is the psychologist's conclusion.

The account of Mr. Cumberland's experiences with the nobility and eminence of Europe is extremely readable; but some notice of his general conclusions will be of greater interest here. The best subjects are among active brain-workers, statesmen, scientists, etc., where concentration is easy and usual. Military men make excellent subjects; lawyers are dodgy and unsatisfactory; musicians cannot fix their attention on anything but music; artists are better subjects; clergymen are perfect in the drawing room but not in public; physicians are good subjects when they have no theory about thought-reading. Von Moltke was the best and M. Dumas the worst subject. Englishmen and Germans are, perhaps, the best races for subjects; while uncivilized races, such as Chinamen and Indians, are bad. Mr. Cumberland's opinion on thought-reading without contact is well worth quoting in full: "Some mystically inclined people claim to be able to read thoughts without contact. For my part, I have never yet seen experiments of this kind successfully performed, unless there had been opportunities for observing some phase of physical indication expressed by the subject, or unless the operator was enabled to gather information from suggestions unconsciously let fall by somebody around. I have on several occasions managed to accomplish tests without actual contact, but I have always been sufficiently near to my 'subject' to receive from him—and to act accordingly—any impressions that he physically might convey."

HYGIENE OF CHILDHOOD.—On the first of May, 1887, will be opened in Paris an Exposition of the Hygiene of Children. The chief of the Organization Committee is Dr. Chassaing.

The Exposition will be technical in character, and embrace all the agencies which apply in the rearing and hygiene of children until the twelfth year of life; it will remain open a month.

TRAINING OF NURSES IN JAPAN.—Arrangements have been made to organize a school of nursing in Kyoto, Japan, under the superintendence of Dr. Berry and Miss Linda Richards, an American lady, who has had large experience, not only in New York and Boston, but in several British and Continental hospitals. The schools, which are especially connected with Christian missionary effort, will give a course of training of about eighteen months' duration, including both theoretical teaching and practical work. A diploma in nursing will be awarded to those who prove themselves competent.

DEATH FROM SEWER-AIR.—An inquest was held at Liverpool, on the 8th inst., on the body of a youth who had been employed as apprentice to a plumber. The deceased had, in the previous week, been engaged in repairing some pipes connected with other pipes which led into a sewer. A good deal of gas came through the pipes, and the deceased complained of pain and sickness. He went home, feeling ill, and died in forty hours. The medical evidence was to the effect that death was due to the inhalation of sewer-air, and the jury returned a verdict in accordance with this testimony.

EUROPEAN MEDICINE AND PHARMACY.—In recent European travel of eight months duration, Dr. Squibb made the following observations upon foreign medicine and pharmacy:

"The pharmacies of European cities offer a striking contrast to those of this country. In England and Ireland they appear to be similar in character, but perceptibly less numerous. In Scotland they are less conspicuous and less numerous than in England, and in France the character and number are still further modified for the better. But it is in other European cities that the contrast becomes most marked. As a broad generalization it may be that in number they reach one-third of the number in this country, but probably not over one-fourth; but the contrast in character and appearance is still more remarkable than in number. Never near together they are commonly in prominent locations, and not uncommonly appear to occupy the whole of a small building. No show window nor colored bottles nor any other form of display. Windows of ordinary size and character, and used only to admit light, except that they may occasionally have one or two growing medicinal plants. No glaring nor large signs anywhere, but generally a small one over the entrance door with the name of the proprietor, and the word 'Apotheke.' Inside the door is a clean clear space occupied by a few chairs. Then a very simple counter without show cases, and without furniture, or with one or two scales of large size. Behind the counter and with their backs toward it are from one to four clerks, each with a prescription scale and measures, engaged in putting up prescriptions or orders. Beside these, the proprietor or his representative appears to be engaged in receiving those who enter, and in superintending the work of the clerks. As a general rule males who enter remove their hats as soon as the door is passed, and remain uncovered until they are served and go out. In many visits to such pharmacies very few verbal messages were noticed, almost all messengers bringing written orders or prescriptions, though they often received only a single article. The proprietor or disengaged clerk receives the order, and invites the bearer of it to sit down, and not once was a messenger seen to sit down without being invited. Often not a word was spoken until the order was supplied and presented, when the clerk would mention the price, or the messenger would ask for it, and, as a rule, conversation seemed to be avoided. The clerks were generally of mature age, intelligent looking, personally clean, and well, though very plainly dressed. The furniture and apparatus was clean and in good order, but clumsy, and there was a notable absence of gaudy, overgilt labels and ostentatious decoration of anything, everything being plain and substantial, even to ugliness and clumsiness. Not a patent medicine card, nor any proprietary article in sight, and no perfumery, fancy goods, soaps, cigars, wines, waters, nor soda fountain in sight. In short, the whole pervading tone was of quiet, earnest, and accurate work of a high order, carefully done, and this tone gave a dignity and an honorable rank to the

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whole place. The writer commonly made an errand of buying a few grammes each of ether, chloroform, and carbolic acid, articles the quality of which could be fairly judged by their sensible properties, and such purchases gave access to the pharmacies, and opportunity to observe the work. The first of these orders was given in Copenhagen verbally through a clumsy mixture of bad French and worse Latin. The clerk, a very young man, very respectfully suggested English, in an excellent specimen of that tongue, and never after was the writer again caught in the same way, and this led to the observation that, with very few exceptions, English was spoken and understood in the pharmacies of Europe.

The articles bought were often of very good quality, and never of bad quality, and were uniformly dispensed quickly and neatly, but never elegantly.

The general conclusions reached by these observations were, that in the United States there is a class of physicians who, in ability, knowledge, and skill in the application of their art, are not excelled by any similar class in Europe, but that in this country this class is so diluted and obscured by the much larger class with superior pretensions and inferior knowledge and skill, who keep themselves so prominently before the public as to overshadow the better class and give a superficial appearance of inferiority to the profession as a whole.

By the uncontrolled multiplication of graduates of medicine here, the profession is overcrowded with indifferently educated men far beyond the demand or necessity for their services, and far beyond the proportionate number in any other nation. If this struggling surplusage and its influences be subtracted, the profession of medicine in this country is probably nowhere excelled.

The condition of pharmacy in the United States appears to be fairly parallel to that of medicine. In no country are there any better medical supplies than in this. Indeed, with respect to both quality and management, there is a strong probability that there is a superiority here. But, there is certainly no country more abundantly supplied with bad drugs, nor with the ability and skill to put them in the place of good ones. In most European countries pharmacy is so controlled that it is not very easy to get bad medical supplies, while in this country, with pharmacy almost uncontrolled, it seems not very easy to get good ones. With good and bad material in equal abundance, the pharmaceutical ability and skill which constitute good pharmacy in the one case make very bad pharmacy in the other, and against this last the European control measurably protects European physicians and their patients. Here there is probably better pharmacy and more of it than there; but here there is an enormous amount of bad pharmacy to contrast with a very little there.—Squibb's *Ephemeris*, January, 1887.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin.* Prof. Westphal has just celebrated the completion of his twenty-fifth year as teacher in the University. The total number of students, including all the faculties, is the highest on record, being 5357. Of these, 1297 are medical students.

Göttingen. The 150th anniversary of the founding of the University will be held next year.

Leipsig. Prof. Credé has intimated his desire to resign the charge of the Obstetric Institution, which he has held for thirty years.

St. Petersburg (Military Medical Academy). Privatdocent Dr. A. Beltsoff has been appointed by the Conference (Senate) to take temporary charge of the Surgical Clinic of the late Prof. Kolomnin. It is stated by the St. Petersburg correspondent of a Riga paper that Prof. v. Bergmann, of Berlin, has declined an invitation to the St. Petersburg Chair.

THE PASTEUR INSTITUTE.—The Paris Municipal Council have agreed to M. Pasteur's application for a 99 years' lease of 2500 metres of ground adjoining the site already granted for his Institute. The ground rent is fixed at four francs per metre.

FUND FOR THE MAINTENANCE OF GUY'S HOSPITAL.—The meeting held at the Mansion House on December 21st to initiate the movement for obtaining the capital sum of £100,000 for the benefit of Guy's Hospital, was addressed by His Royal Highness the Duke of Cambridge, Cardinal Manning, Mr. Leopold Rothschild, and the Bishop of Rochester. It was stated that the annual revenue of the hospital had, owing to agricultural depression, declined from £41,000 to £26,600, and that it had been necessary to reduce the number of beds in use from 650 to 400. Cardinal Manning spoke strongly against the French system of government hospitals, on the ground that the department which had the management of the hospitals was always ruled by political influences; that the system checked the flow of charity; and that it substituted a mechanical method for "the dynamic power of charity that had governed and civilized the world." It was announced that the governors were willing to publish a full annual balance-sheet if they were entrusted with public money. The fund already amounts to over £17,000.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U.S. ARMY, FROM JANUARY 11 TO JANUARY 17, 1887.

BAILY, JOS. C., *Lieutenant-Colonel and Assistant Medical Purveyor.*—Ordered from Department of the East to New York City to take charge of the medical purveying depot in that city, relieving Captain Henry Johnson, medical storekeeper, from duty as acting assistant medical purveyor.—*S. O. 9, A. G. O.*, Jan. 12, 1887.

BROWN, HARVEY E., *Major and Surgeon.*—Granted leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Division of the Missouri.—*S. O. 9, A. G. O.*, January 12, 1887.

BROOKE, JOHN, *Major and Surgeon.*—Ordered for duty as Post Surgeon at Fort Monroe, Va.—*S. O. 10, Division of the Atlantic*, January 14, 1887.

GARDNER, W. H., *Major and Surgeon.*—Ordered for duty as Post Surgeon at Fort McHenry, Md.—*S. O. 10, Division of the Atlantic*, January 14, 1887.

BARNETT, RICHARDS, *Captain and Assistant Surgeon.*—Leave of absence further extended six months on account of sickness.—*S. O. 9, A. G. O.*, January 12, 1887.

WILSON, GEO. F., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended twenty days.—*S. O. 9, A. G. O.*, January 12, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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THE MEDICAL NEWS.

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ORIGINAL LECTURES.

BLACK CATARACT.

A Clinical Lecture delivered before the School of Ophthalmology, at the Central Dispensary, Washington, D. C.

BY SWAN M. BURNETT, M.D.,
DIRECTOR OF THE OPHTHALMOLOGICAL AND OTOLOGICAL CLINIC.

GENTLEMEN: While it is our main purpose in these clinical lectures to bring before you the commoner forms of eye-disease, such as you will be most likely to meet with in the ordinary routine of your practice, we shall not allow to pass by unnoticed some of the rarer forms of ophthalmic affections, particularly those in which the diagnosis presents points of difficulty. In ophthalmology, as in internal medicine and general surgery, correct diagnosis lies at the basis of successful therapeutics, and the close study of the differential diagnosis of the various affections of those parts of the organ of vision open to inspection by the naked eye, will be of much greater value to you in these preliminary studies than watching the most skilfully performed extraction of cataract.

But the diagnosis of cataract should be a matter of great interest to you, even though you may never make an attempt to operate for one. It is a common practice —and a very good one—for patients to apply to their family physician whenever they have any trouble with their eyes, in order that he may direct them where to go in case he does not consider himself competent to treat it. Should one of your patients so apply to you, it would be very humiliating, if you had diagnosticated a cataract, to have the ophthalmologist to whom you referred him find an atrophy of the optic nerve, or glaucoma. This a common experience at this clinic. Patients have been sent here by physicians, having made all their arrangements to remain for an operation, no doubt existing in the mind of either physician or patient that it was a case of cataract, and that at the end of two weeks the patient would return home restored to sight. It is not a pleasant thing to have to tell these poor people that their physician was mistaken—that their lenses are perfectly clear, and that an operation cannot bring their sight back to them.

And, generally, the existence of cataract is readily determined; so readily, in fact, that most intelligent laymen know, from the appearance of the pupil, when the lens is opaque. At a distance of many feet the white appearance of the ordinarily black pupil proclaims the presence of cataract. Not, however, that all white spots on the "black of the eye" are cataracts. Mistakes in this particular are, perhaps, more frequent than of the opposite kind. A great many people, and, I am sorry to say, some physicians, regard any white opacity on the anterior part of the eyeball as a cataract.

The diagnosis of cataract is, as already stated, under ordinary circumstances, a matter of no difficulty whatever. A simple inspection will show at once a whitish opaque substance occupying the pupillary space behind the iris. This is particularly the case in children and younger adults affected with cataract and with the traumatic form, where the opaque lens is almost white, reflecting as it does nearly all the light that falls upon it. The softer the lens substance—that is, the more water it contains—the more heterogeneous and less compact are its particles, and the more light it throws back, just as the fine crystals of snow held loosely together are whiter than the compact ice.

All cataracts, however, are not soft and white, and in proportion as they become denser they reflect less and less light and the whitish appearance is less and less marked. For the diagnosis of cataracts such as these, a simple inspection will not always suffice, but recourse must be had to an illumination of the pupil by the concentration on it by means of a convex lens of two or three inches focus, of the light of a flame placed to the side of the eye. This method is usually known as "oblique illumination" or "examination by the oblique light." Under the examination any irregularity in the density of the lens generally reveals itself very readily as whitish or grayish spots or lines on the black background. In making this examination, there is one error to be guarded against, into which the inexperienced is very likely to fall. In persons advanced in life the pupillary space under the oblique illumination is not black, but greenish-gray, quite a sea-green in some cases, resembling, I fancy, somewhat the appearances the older writers meant in their descriptions of "glaucoma." This change in the aspect of the pupil does not always, in fact, very seldom, mean any great loss of transparency, as an examination with the ophthalmoscopic mirror will show at a glance. It signifies a certain amount of condensation or sclerosis of the lens-fibres which may be considered as a kind of natural evolution on the part of the tissue in common with the changes in other parts of the body due to advancing age. Its peculiarity is that it is perfectly even, in contradistinction to the opacity of cataract proper, where the opacity is, in the incipient stage, irregular, and whitish with no tinge of green. To make, however, assurance doubly sure, the diagnosis should not be considered as absolutely final until the ophthalmoscope is used. If there are any opacities in the lens, these will show themselves as black spots or lines on a reddish ground, when the light is thrown into the pupil from the ophthalmoscopic mirror. If the pupillary space is evenly illuminated you may be sure there are no opacities in the media—certainly the anterior media—that are at all serious. By one of these three methods, therefore, simple inspection, oblique illumination, or the ophthalmoscopic mirror, any ordinary case of cataract can be diagnosticated readily and with ease.

But occasionally there arise cases where a differential diagnosis is a matter of no little difficulty. Quite a

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number of the text-books written since the invention of the ophthalmoscope, will tell you that the existence of an opaque lens can be determined by means of this instrument, and the oblique illumination, with a certainty which admits of no exception. Happy would we be if that were so, and the purpose of this clinical lecture is to point out a class of cases in which this great instrument is not always sufficient in itself to establish a diagnosis.

For this purpose I will ask you to examine with me this woman, Mrs. X., who is thirty-eight years old. She came to the dispensary a week ago, being led by her daughter. In the right eye she had been blind for a number of years, but vision in the left had been sufficient to enable her to get about and perform her household duties until within the last three months. She is now blind in that. If you look at her pupils, you will see that they are black, with no appearance of gray, green, or white, whatever. You will observe this peculiarity about the eyes, however, that the iris in both oscillates or trembles when she moves the eyes. This is evidence of a lack of posterior support to the iris, and indicates a slight dislocation of the lens. Proceeding now to a further examination with the ophthalmoscope, we throw the light from the gas-flame, by means of the mirror, into the pupillary space. There is no reddish reflex—all is black. We are certain now that there is opacity somewhere in the refracting media, but its exact locality is not revealed to us by the mirror alone. It might be anywhere from the aqueous humor to the retina. We now concentrate the light on the anterior portion of the eye by means of a strong convex lens. The cornea is clear, and the aqueous humor unclouded, for the iris is seen clearly. The pupillary space is black, to the ordinary observer it would seem perfectly black, but an oculist of experience would find a very slight tinge of gray, such as is usually found in the pupils of persons advanced in life. The pupils have been dilated with atropine, and as far as can be seen toward the periphery there is no irregularity, no striation, but everywhere an even, smooth field of black. Such an appearance is so different from that of the ordinary cataract which you have seen here so often, that it would probably never have occurred to you to suspect that it was a cataract. But it is evident from the examination with the ophthalmoscopic mirror that there is an opacity somewhere posterior to the iris which obstructs the passage of light, and this obstruction must be either in the lens or vitreous humor.

How shall we determine in which of these two tissues the obstruction resides? The ophthalmoscope and oblique light, as we have seen, not giving us definite answers, we must resort to a test which was the first one used to determine, in a scientific manner, the presence of the lens in the eye as well as its transparency. It is called among the older writers—that is, those in the preophthalmoscopic era — the "Purkinje-Sanson," or simply the "Sanson" experiment (in honor of the man who first described it),[1] or the "catoptric test." The test is based upon the well-known laws of reflection from curved surfaces. The lens being a body with curved surfaces placed in a medium (the humors of the eye) of less density than itself, must furnish, in accordance with these laws, two images of an object held in front of it, just the same as an ordinary convex lens held in the air.

If we place a candle in front of a healthy eye, we see three images of the flame when it is held a little to one side of a line passing through the centre of the observed pupil and our own. The first of these, on the side next the candle, is a bright erect image of the candle-flame reflected from the convex surface of the cornea; the second is the blurred outline of the erect image reflected from the anterior convex surface of the lens; the other very small—so small indeed that it can be very readily overlooked and can be seen distinctly only by means of a magnifying glass,—and inverted, comes from the concavity in the vitreous in which the posterior wall of the lens rests. If the candle is moved up and down, the images also move; the two erect ones from cornea and anterior surface of the lens in the same direction as the candle, the small inverted one in the opposite direction, as do all images formed by concave surfaces.

It is perfectly evident that in order for the small inverted image to be formed, and consequently seen, light will have to pass through the lens. Its absence, therefore, is conclusive evidence of an obstruction to the passage of light—lenticular opacity, in other words.

We will now apply this test to the eyes of Mrs. X. Holding a candle about eighteen inches a little to the left of a line passing through the centre of a pupil, we see the bright erect image of the flame from the cornea, and the blurred quite indistinct image from the anterior surface of the lens, but nowhere the small bright inverted image from the anterior concave wall of the vitreous, such as we saw in the eyes of the gentleman with a transparent lens, on whom we just now applied the test. The diagnosis is, therefore, established beyond peradventure—the patient has cataract.

This, gentlemen, is not the first time that we have been compelled, in this clinic, to resort to this old method of diagnosticating cataract. A case of even greater difficulty than this one presented itself, in accordance with that law which seems to govern the occurrence of rare cases of disease, only two weeks ago. Some of you, who were present at the time, will doubtless remember her. It was in a colored woman of sixty-eight years, whose left eye was fairly good, but whose right had been blind for some time—but how long we could not find out since an intelligent account of it was not to be had. Both pupils were of the same degree of blackness, and were quite as black as those of her daughter of twenty-eight years, who accompanied her. The ophthalmoscope showed, not a perfectly black pupillary reflex, but a faint shimmer of red or brown, though perfectly uniform and even. The pupil was dilated with atropine, and a careful examination made by the oblique light; and though the whole of the pupillary space was carefully and repeatedly examined, even with a magnifier, not a trace of striation or irregularity of any kind whatever could be found, except at the lower inner corner, where there was a single white projection into the pupil of about one millimetre, evidently in the capsule, as it was immediately under the iris.

It curiously happened that the same day another patient presented herself with an eye having exactly

[1] Purkinje: Beobacht. u. Versuche z. Phys. d. Sinne. Berlin, 1825.

Sanson: Leçons sur les Mal. d. Yeux. Paris, 1837.

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the same appearances under the ophthalmoscope and oblique light, barring the opacity in the capsule. The vision in the affected eyes of these two patients was about the same—that is, there was a good perception of light and normal projection, but no power to distinguish even large objects, though held close to the eye. I do not hesitate to say that without the aid of the "catoptric test" it would have been impossible for even an expert to have made a differential diagnosis in these two cases. We applied, in the presence of some of you, this test, and demonstrated to the satisfaction of all that the small inverted image was present in the one case and absent in the other, and so absolutely did we trust the finding of this examination that we at once sent the one case to the Garfield Hospital for operation, while the other was put under treatment for a choroiditis with serous effusion into the vitreous. The case of the colored woman sent to the hospital, confirmed, under the operation, our diagnosis in a most satisfactory manner. It was my desire to extract the cataract in the capsule if possible, for I wanted to subject the lens to some examinations for determining its exact character and constituents. In the accomplishment of this I was most fortunate. Latterly I have been making all extractions without an iridectomy whenever I deemed it safe, but to extract in the capsule is much easier and less dangerous with an iridectomy, and in the present instance, after making a large incision after the manner of de Wecker, I excised a rather large piece of the iris and succeeded, by manipulation, in delivering the lens in the capsule without the loss of a single drop of vitreous. The lens was at once measured and found to be 8.5 millimetres in its equatorial diameter and 2.7 millimetres in its antero-posterior diameter. Those measurements included the capsule, and fall only a little below the measurements of a normal adult lens. When held against a black background it appeared perfectly black, but when viewed by transmitted light it gave a rose-amber color at the periphery which gradually and evenly deepened into a dark reddish-brown at the centre. It was placed in a neutral fluid and taken at once to the Army Medical Museum, where Dr. Gray was kind enough to examine it under the microscope. He found some folding of the capsule, but the lens structure itself was perfectly uniform; neither by transmitted nor reflected light could any irregularity in density be made out under the highest powers that could be applied. There were no pigment granules anywhere. I then took it to the chemical laboratory at the National Museum and Prof. F. W. Clark was good enough to examine it spectroscopically. The examination was made with a Hoffmann's hand spectroscope, and Prof. Clark assured me that any hematine could be excluded, for there was an entire absence of the blood absorption bands. There was, however, a cutting off of the whole of the blue end of the spectrum.

This last is exceedingly interesting, taken in connection with a clinical phenomenon which is quite frequently observed in persons operated on for cataract. Only a few weeks ago I operated on a woman for cataract having a hard nucleus. As soon as the eye was opened, after I had cleared the pupil of some remaining corticalis, she exclaimed: "Oh! how blue every thing looks." Such an experience is very common with intelligent patients who are accustomed to observe their sensations closely. What is the cause of it? A spectroscopic examination of the nucleus removed from her eye, I think, readily explains it. It was exactly the same as in our specimen of "black cataract." All the blue rays of light are absorbed by the lens, and only the rays belonging to the red and yellow end of the spectrum struggle through and reach the retina. This has continued for years, and the parts of the retina or brain which take part in the perception of blue have remained dormant and resting, while the stimulation of the yellow and red rays has continued all the while. Now, when the lens is removed and a flood of white light containing all the colored rays in due proportion, is admitted into the eye, the blue rays are perceived so strongly as to overpower the others, and give a predominating color to all objects. It is analogous, or identical, with the phenomenon observed when you look fixedly at a cross or other object of a red color for a few seconds and then direct your gaze to a white wall, or sheet of paper. The cross is seen for a short time on the white surface as green or bluish-green, according as the original color was red or yellowish-red.

After the occurrence of the first of these cases, and being by it made aware of the great difficulty that would be experienced by a young practitioner in determining the seat of the opacity, I examined all the text-books to which he would be likely to look for information, to find how far they would give him assistance in his time of need.

There is almost a unanimity of silence as to the catoptric test, in all the text-books published since 1851, the date of the invention of the ophthalmoscope. Of our American text-books, Alt, Schell, and Noyes do not mention it at all in connection with cataract. Williams mentions it, but disparagingly—"It is not very easy or certain of application," he says; and Mittendorf mentions it only incidentally. Of the English works, no notice of it is found in Nettleship, Swanzy, Wolf, or Macnamara. Wells mentions it, but says it is not used now; and Haynes Walton, in the edition of his work published in 1861, dismisses the subject with the following sentence, "Purkinje's candle or the catoptric test, so much vaunted as a means of distinguishing incipient cataract, is really valueless, but as it enables us to pronounce with certainty whether the lens is absent or not I introduce it here."

Of the foreign text-books that I consulted, Schweigger, Massillon, and de Wecker pass it over in silence, while Meyer says that "the formerly much used catoptric test of Purkinje-Sanson is *ausser Gebrauch gekommen*." On the contrary, nearly all the works published prior to the invention of the ophthalmoscope give it great prominence as a method of diagnosis.

While thus valuing to the fullest extent the brilliant discoveries in diagnostic methods in more recent times, let us not undervalue or neglect those other means on which our fathers in ophthalmology wholly relied. We cannot have at our command too many methods of differentiating one form of disease from another.

Concerning the essential character of black cataract, its etiology and frequency, there seems to be much difference of opinion. Some modern writers do not mention it at all. You will not find it alluded to in the text-books of Alt, Nettleship, Williams, Noyes, Swanzy, or Wolf, and those that do so, for the most part, give it but

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a passing notice. Mooren, in his tabulation of 108,000 eye cases,[1] gives 6536 different affections of the lens which had come under his observation, but among them not a single case of *cataracta nigra* is recorded. On the contrary, Dr. Knapp, of New York, writes me that he has seen "dozens of cases of *cataracta nigra*," one of which he had just extracted at the time he wrote. Dr. Chisolm, of Baltimore, whose experience in cataracts is probably as large as any one in this country, says that in 477 cases of cataract he saw in the last twelve months, there was one case of typical black cataract, but even in this there was some striation visible by means of the oblique illumination. Dr. Ayers, of Cincinnati,[2] in his paper on the subject, says that Dr. E. Williams in his vast experience has seen but two cases. Armaignac[3] is of the opinion that it occurs once in about 500 cases of lens trouble. Mackenzie[4] says, "I have seen a few cases of lenticular cataract in which the opacity was so very dark that without close examination the disease might have passed without detection; on concentrating the light on the pupil the lens appeared striated. Such cases have been called *black cataracts*." Desmarres[5] gives an account of a single case he saw in his practice. Dupuytren and Delpech never encountered a case in their immense practice, and others of equal prominence have denied its existence.

Even as late as 1853, the *Dublin Medical Press*, in commenting upon Alessi's case of black cataract, reported in the *Bulletino delle Science Medicale*, says: "The ghost of a black cataract has been haunting the study of the ophthalmologist time out of mind, never to be caught, and seldom to be perfectly seen. Here it is again, 'the field of the pupil quite dark,' 'the appearance was of a dull, dusky color,' 'a black tint,' 'a reddish-black,' 'a dark color,' 'which is lost by maceration in alcohol,' and as like a 'flattened bog-berry' as a sea-serpent is like a whale."

My own opinion, gathered from reading considerable literature on the subject, is that brown, partially black, cataracts are rather common, but that pure black cataracts, particularly those of the character of our first case, which show absolutely no striation by oblique light, are extremely rare.

There is as little uniformity in opinions regarding the cause of the blackness of these cataracts as in respect to their frequency.

Desmarres's case (l. c.) was examined by MM. Gros and Lebert. The former found pigmentary granules and grains of colored matter in the cortex; while the same lens examined by the latter was found to have no grains of pigment, but a homogeneous browning of the lens fibres.

It is not at all improbable that the pigment and brownish granules seen by Gros, and also by others who have reported similar conditions, are due to the presence of the pigment of the iris and blood-globules which have adhered to the lens in passing through the pupil or coloboma of the iris.

The case reported by von Gräfe,[6] however, seems to have been somewhat different. It was in a man twenty years of age, who had had a blow on the eye. The nucleus was dark, almost black, with a spot of blackness on the corticalis, the greater part of the corticalis, however, being white. The lens showed, on examination after extraction, a quantity of pigment diffused and in spots among the lens fibres, all of which gave the chemical reaction of blood. He considers this case, and one other case of a similar kind which he relates, to be due to the imbibition of blood by the lens, following hemorrhage in its vicinity.

He relates, however, a second case, which seems to be identical with our first. It was in the pre-ophthalmoscopic days, and the pupil appeared steel gray, and the small inverted image in the Purkinje-Sanson experiment was lacking. The lens, on extraction, was of a dark amber color.

Müller's case[1] was very much like ours, except that there was a posterior synechia. A microscopic examination did not show any granules or pigment.

In the *Index Catalogue of the Library of the Surgeon-General's Office* there are fifty-one titles under "black cataract," not including text-books, and from a consultation of a majority of these articles, and of the most prominent treatises on the eye, I am satisfied that two very distinct forms of lens affection have been described under the term *cataracta nigra*. In one there is undoubted infiltration of pigment into the lens-substance, probably originating from a hemorrhage in the vicinity of the lens, which should be called *cataracta pigmentosa*. In the other, the true *cataracta nigra*, there is no infiltration of pigment, but simply a sclerosing or hardening of the whole of the lens, of the same character as in the nucleus of the ordinary "hard cataract." In other words, the lens becomes all hardened nucleus. In proportion as this sclerosing process is even and smooth, leaving the lens fibres of the same density throughout, in that proportion will the lens reflect less and less light, and the pupil offer less and less the usual white appearance characteristic of the common form of the disease, and show fewer striæ and irregularities under oblique illumination. I think there can be no doubt that such black cataracts are longer in forming than the others, and consequently we should expect to find them more frequently in persons well advanced in life.

The prognosis for operation in such cases does not seem to be worse than in the other forms. In our own case the patient made a faultless recovery, and has excellent vision. In operating, however, the fact must be borne in mind that the lens is large, and the corneal incision should be correspondingly ample.

[1] Fünf Lustren ophthalmologischer Wirksamkeit. Wiesbaden, 1882.

[2] Black Cataract, Cin. Lancet and Observer, 1872.

[3] Journ. d. Méd. d. Bordeaux, t. ix. p. 357.

[4] Diseases of the Eye, 4th ed., 1854.

[5] Traité d. Mal. des Yeux, 1885.

[6] Archiv f. Oph., i. p. 353.

ORIGINAL ARTICLES.

NEPHRORRHAPHY AND NEPHRECTOMY.

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CASE I. *Nephrorrhaphy.*—I. B., aged thirty-two years, married, a native of Pennsylvania, was admitted to the medical ward of the University Hospital, October 13, 1883, with the following history:

[1] Archiv f. Oph., ii. 2, p. 164.

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His occupation was that of a salesman. For some time he had been employed in a furniture store and enjoying perfect health. In the fall of 1878, while lifting a heavy piece of furniture, he felt something give way in his back, followed by a sharp sickening pain in the same region. His suffering was so great that he was unable to continue his work.

When admitted to the hospital he complained of a severe dragging pain in the lumbar region which extended downward to the caput coli, was paroxysmal, and always aggravated by any unusual effort. Dimness of vision was also present, though a careful examination of the eyes failed to disclose any abnormality whatever. In the left lumbar region and extending forward to the umbilical there was a tumor having the general conformation of the kidney. This could be readily felt through the abdominal parietes, though occasionally it would disappear beneath the ribs, and could only be made tangible by the manipulations of the patient.

At the time of his admission albumen in small quantities was detected in the urine, but no casts. The former disappeared very soon or after a few days of quiet in the hospital ward. The diagnosis made by Prof. Pepper, under whose care the patient was placed, was floating kidney. Various measures were adopted to fix the organ but without avail, and at the end of some months he left the institution without realizing any material benefit. The following October, finding himself growing worse, he returned to the hospital and came under my care. Several examinations of the urine were made, none of which gave any evidence of structural change in the kidney. Nephrorrhaphy was proposed as the only procedure promising relief. The proposition was accepted, and on the 10th of October the patient was placed on the table; the kidney exposed through the loin and the organ stitched in the wound by means of animal threads passed through its capsule. A drainage tube was introduced and the incision closed by sutures. The operation was made under strict antiseptic precautions and resulted in prompt union. After the first twenty-four hours the temperature remained normal, and on November 5, 1884, the patient was discharged.

CASE II. *Nephrectomy.*—On April 21, 1885, he again returned to the hospital with a renewal of all his old symptoms in so aggravated a degree as not only to incapacitate him for his occupation, but requiring the use of morphia to obtain a reasonable amount of comfort. He stated that while engaged at some work he was seized with lumbar pain and felt that the kidney had left its moorings. An examination verified his fears, as the organ could be distinctly recognized in front, through the abdominal parietes.

Nephrectomy was now proposed, and to this the man readily acceded, and on the 23d of April the operation was done by the lumbar incision, the wound closed by sutures, and a drainage tube brought out at the lower angle, the whole procedure being executed under strict antisepsis. The temperature at no time rose above 100°, and the urine varied in quantity from twenty five to forty-five ounces daily. At the end of fourteen days the drainage tube was removed, and on May 21, two days less than four weeks, the patient returned to his home. For some time a small sinus remained, which ultimately closed after the discharge of a loop of thread which, I believe, was the ligature that had been used to secure the renal vessels. The patient continues well up to the present time.

The operation of nephrorrhaphy has not been attended with the success which at one time was anticipated, the organ in most cases breaking away and wandering into its former abnormal position. Still I do not think this mode of treatment should be too hastily abandoned. I believe that with some modification of procedure better results will be obtained. That which I would suggest would be, instead of tearing away too freely the fat which surrounds the organ, simply to open a crevasse sufficiently large to admit of the kidney being slipped through, and then with the mass of adipose tissue in front, let the latter, instead of the kidney, be stitched to the edges of the wound.

CASE III. *Nephrectomy.*—Mrs. H., aged sixty years, white, married, was admitted to the private department of the University Hospital, Nov. 19, 1886. Nine months previous to admission she had experienced pain in the left iliac region accompanied by dragging sensations in the corresponding loin. These symptoms increased in severity; she began to lose flesh and strength and had become exceedingly nervous. On examination an irregular swelling was readily discovered in the left lumboiliac region, movable, sensitive to handling, and apparently about twice the size of a healthy kidney. The urine contained neither renal elements nor albumen. The absence of renal epithelium and of blood in the urine, the progressive loss of flesh, and a suspicious color, left me somewhat undecided both as to the organ involved (kidney or ovary) and the benignity of the tumor. Still I inclined to the opinion that the growth was an enlarged kidney. As the woman's health was failing rapidly, laparotomy was proposed and accepted. Assuming that possibly the disease might prove to be ovarian, this operation was, under the circumstances, deemed best. On November 20 the patient was placed on the operating table, and the abdomen opened by a median incision three inches in length, bringing at once into view a large irregular-shaped mass which, on a closer examination, proved to be the kidney. Its peritoneal investment was carefully stripped off, the ureter and vessels after being securely ligated were divided and the organ removed. After applying the animal thread to two or three small bleeding vessels, the cavity of the belly was washed out by warm water, previously well boiled, the wound closed by interrupted sutures, covered with a compress of carbolated gauze and a pad of salicylized cotton, and the whole secured in place by a broad flannel binder. During the operation the spray was allowed to play over the abdomen and a solution of the bichloride (one to five thousand) was used for the sponges. The amount of daily urine could not be accurately ascertained as a certain quantity escaped in the bed before the urinal could be adjusted, but that which was passed voluntarily and collected varied

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from ʒix to ʒxxij and on one occasion rose to ʒxxx. The temperature oscillated between 98° and 99⅕°, and on only two occasions did it rise to 100⅖°, subsiding at once to 99⅖° after the bowels had been relieved by an enema. On the 28th the stitches were removed, the wound having healed in its entire length. After the 30th the patient sat up daily; indeed, from the time of the operation there were present no unfavorable symptoms whatever. On the 7th of December while sitting up she was suddenly seized with severe abdominal pain, which was attributed to a cold taken in changing her room. This increased in severity, though unattended by any abdominal distention. The urine had rapidly fallen off in quantity, soon followed by suppression. A hypodermatic of morphia one-quarter grain, atropia one-hundredth grain relieved her suffering, but she soon sunk into a profound stupor and died.

As an autopsy was not allowed, the cause of death in this case remains somewhat obscure. It is difficult to conceive of peritonitis setting in at so late a date from ordinary causes, as the patient was then in her third week, and there had been no error of diet or other indication to account for such an attack, unless the cold, which necessitated a change of rooms, may have done so. The more reasonable explanation for the unexpected termination of the case, I think, may be referred to the remaining kidney. The organ removed contained a number of cysts, some of them very beautiful illustrations of pearl cysts. These cysts did not appear to communicate with the pelvis, and hence the absence of renal elements in the urine. It is, therefore, more than probable that the other kidney was undergoing a similar degeneration—as bilateral cystic disease of these organs is quite common—and that it was unequal to the work of supplementing the functions of its fellow, in consequence of which uræmic poisoning followed, and this may have developed the peritonitis if such a condition was present.

SOME FACTS RELATING TO THE EFFECTS ON MAN OF FUEL- OR WATER-GAS, AS OBSERVED IN THE RECENT CASES OF POISONING AT TROY, N. Y.

By R. B. BONTECOU, M.D.,
OF TROY, NEW YORK.

THE introduction into cities of fuel- or water-gas for domestic and manufacturing purposes is becoming a subject of interest, not only on account of its cheapness and cleanliness, but more especially on account of its poisonous nature, and from the fact that it is quite odorless, and produces its deleterious effects before there is any suspicion of its presence.

A number of accidents have occurred since its introduction here, and very recently three fatal cases in one house. No serious cases of poisoning have, to my knowledge, occurred to those who used the gas for domestic or manufacturing purposes, but all the cases of sickness and death attributed to it here have occurred in houses on the street on which the mains are laid, and where, from presumed leakage, the gas has permeated the soil beneath the frozen earth into the cellars, and thence up into the buildings. In five stores located near one of the mains, the clerks and porters, about fifteen persons in all, were so seriously affected on one day as to be obliged to have medical aid, two or three losing consciousness for a short time.

On the evening of January 16th the inhabitants of a row of three-story brick buildings were almost all seriously overcome by the gas. When the cause was discovered the people of the vicinity were aroused by the police, who found many sick, and on one flat all the occupants dead. The opening of windows and doors for the remainder of the night saved many lives. The persons who were found dead had probably been so for some hours, as "rigor mortis" was present in all. Their fires were burning in the stoves and their lamps still lighted on the tables. One of these cases was an old woman, who was found sitting in a chair by the stove, with her head thrown back and in her hand her artificial teeth, as if she had been vomiting. Her daughter, a person about forty-five years old, lay dead on the floor near by, with a slop bucket at her side, as if she had also been vomiting. The third, a man about forty years old, sat upright on a lounge with his head reclining on his shoulder as if death had been sudden and painless. The expressions of the deceased were placid.

I was present and assisted at the autopsies of these people made by Dr. John W. Morris, about eighteen hours after death. Their bodies appeared to have been in good health and well nourished, and there were no external marks of violence nor any evidence of commencing decomposition. The faces of the two found sitting were pale and exhibited a placid expression, eyes closed, pupils natural, neither contracted nor dilated, conjunctivæ clear.

The woman found on the floor in dorsal recumbency also had a peaceful expression of the face; her tongue was slightly protruded between her teeth, and the neck and one side of the face were discolored by florid hypostatic congestion. Her pupils were natural and conjunctivæ clear. On section the muscles were noticed to be unusually red—a bright cherry-red. The lungs were free from adhesions, and filled their cavities completely, were crepitant throughout, and of a cherry-red color. On section serum flowed freely, but there was no œdema. There was no unnatural amount of fluid in the pleuræ or in the pericardium. The heart was empty and on section fluid blood escaped from the vessels. The left ventricle was contracted and firm. The right not contracted and, together with the auricles, rather flabby. Valves were all normal.

The abdominal viscera were all in a normal condition. The stomach contained a moderate amount of well-masticated food without any unnatural odor, and there was no odor of alcohol or beer. The intestines were natural as to distention and contents, but were of an unnaturally pink color throughout. The kidneys, spleen, and liver were all normal. The gall-bladder contained five calculi. The blood everywhere was fluid and no coagulum was seen.

The body of the old woman presented the same unnatural vivid redness of all the solid portions except the adipose tissue. The lungs filled their cavities completely, and were crepitant throughout. Heart

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was empty, valves normal, and blood everywhere fluid. Abdominal viscera were all normal; stomach contained a small amount of liquid food, and no odor of liquor, or of anything unusual. Intestines were of a decided pink color. Kidneys, spleen, and liver normal, except that they were too vividly red in color.

Autopsy on the man presented the same unnatural vivid redness of the textures, except the adipose. His lungs filled their cavities, and crepitated throughout. Heart empty, valves normal, blood everywhere fluid, and no coagulum. Stomach contained a small amount of well-masticated food, without odor of liquor; intestines of a pink color. Kidneys, spleen, and liver normal. Brain membranes were vividly red all over, and an unusual amount of serum escaped when they were opened; the white portion of the brain was studded with an unusual number of red points on section; there was no coagulum in any part of the brain, and both in the sinuses and elsewhere the blood was fluid.

On opening the cavities of the first woman I put my face close to the parts, to obtain a peculiar faintly alliaceous odor which I had perceived and which I had never before recognized. This presently gave rise to a sense of faintness and severe epigastric pain, so much so that I was for half an hour obliged to stop work, and the resulting headache and feeling of indisposition lasted all day and evening. I have made and been present at several thousand autopsies, and was never before affected unpleasantly, and, as I was in good health at the time, ascribe it to inhaling the poisonous gas respired by the woman and exhaled at the autopsy from her tissues.

I have made inquiries of several of the persons who resided in the buildings and who were affected by the gas, as to their symptoms, and all stated that they felt either pain in the head, or a sense of tightness like a band around it, and also faintness and giddiness until they became unconscious. A few had epigastric pains and vomiting, and quite a number whom I did not personally see are reported to have suffered from the same symptoms.

Fuel-gas is not used for illuminating purposes; it burns with a pale bluish flame of great heating power, and it is produced by decomposing the vapor of water in the presence of burning coke or coal. Its constituents are reported to be hydrogen 56, carbonic oxide 44 parts, in 100.

P. S.—Since writing the above I learn that a gentleman who was exposed to the gas, in his store, about January 7th, was confined to his house in consequence for a week.

On the occasion of the fatal accident, a gentleman living in the third story of a house in the same block was awakened, about eleven o'clock, by the strange conduct of his dog. The animal made unusual noises like the act of vomiting, and whined and barked in a peculiar way, which awakened the man and his wife, who then discovered that they were sick, and that other occupants of the building, also, were sick. Probably if the dog had not aroused them, the inhabitants of this whole block of buildings would have perished.

A YEAR'S WORK IN OVARIOTOMY.[1]

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IT was my intention at first to embody in one article all my year's work in laparotomy. But, since the number of cases amounts to fifty-nine, the consideration of which would make too bulky a paper, I have decided to limit myself to my cases of ovariotomy, which numbered twenty-nine, with three deaths. These cases I now present in a tabulated form, and let me here premise that they were not selected, but were taken just as they came to me. The only case on which I refused to operate, was one which had, besides an ovarian cyst, a cancer of the cervix uteri. Let me also add, that in every case save one—No. 189—the operation was completed, no matter what difficulties were encountered, so that I have no exploratory incisions to report on the score of ovarian cysts.

Of these twenty-nine cases, twenty-three were operated on at my private hospital, four at the homes of the patients, and two at the Hospital of the University of Pennsylvania. Not one of these three deaths was due to septicæmia, but to the grave complications in each one, and a few words of explanation are needed. Before the death of Case No. 178 I had had in succession twenty-two successful cases, and afterward a series of eight cases before the next death took place.

No. 178 was a dreadful case of intra-ligamentous cyst. The lady, aged forty-three, first discovered the tumor in October, 1885, and since then it had grown rapidly. She suffered much pain from it, had greatly emaciated, and had finally become bedridden. She had consulted a number of experts, who had all pronounced the growth to be a fibro-cyst of the womb. I found a very large and immovable tumor, completely filling up the abdominal cavity, and bulging so low down in Douglas's pouch as to present at the vulva. Fluctuation was obscure, and adhesions were apparently universal. A prominence on the left side of the abdomen, and nearly on a level with the umbilicus, proved to be the fundus of the womb. The os uteri was drawn high up behind the symphysis pubis, as is often the case in uterine growths, and very rarely indeed in ovarian tumors. The sound went in five inches, and its tip in the prominence could readily be felt through the abdominal wall. The womb was immovable, and the tumor seemed to spring directly from it. My diagnosis was either a fibro-cyst of the womb, or a colloid ovarian cyst with close uterine connections, and with pelvic and general adhesions. In view of the very weak condition of my patient, the obscurity in the diagnosis, and the presence of formidable adhesions, I looked upon the case as a forlorn one, and I must confess to having felt a great reluctance to undertake the operation. She noticed this, and taxed me with it, saying, "You are afraid of your statistics." I replied that I had never refused to operate, no matter how ill the patient was, but that

[1] Read before the Obstetrical Society of Philadelphia, January 4, 1887.

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I was afraid that she would die on the table. This, however, did not deter her, for she was a brave woman, and knowing that an operation was her only chance, she was determined to risk it.

On June 22d I operated on her, being aided by Drs. Jacob Roberts and W. Constantine Goodell. There were present also Drs. A. E. Malloch and John A. Mullin, of Hamilton, Ontario, and Dr. John W. Pickup, of Brockville, Ontario. The tumor turned out to be an intra-ligamentous and colloid ovarian cyst. It was attached to the whole of the ascending, transverse, and descending colon, to the small intestine, to the pelvis, to the bladder, and to the whole surface of the womb, measuring five inches. Over twelve inches of the right ureter had to be carefully dissected off from it. The lower portion of the cyst was included between the folds of the broad ligament, and it had to be carefully enucleated from it. When all the adhesions were severed the tumor came away without a pedicle. As the other ovary was merged in the large one, I could not tell which ovary was the diseased one; but, I think, from the implication of the right ureter, that it was the ovary of the right side. Very little blood was lost, for many pressure forceps and ligatures had been applied, and the peritoneal cavity was easily cleaned out. I put in a drainage tube, and was tying the last few stitches, when my patient's pulse suddenly flagged and she died in less than a minute. The operation had lasted two hours, and my great regret is that I did not let her partially come out of the ether several times during the operation; but her pulse and respiration had kept good.

Intra-ligamentous cysts, or those which grow between two layers of the broad ligament and carry them up as the cysts grow, present grievous complications, which tax the pluck and skill of the operator to the utmost. I had three of them during the past year, two besides the foregoing one. They were Cases 179 and 182. Each case required careful and patient enucleation, and the application of many ligatures. In the latter one, the cyst was also shelled out without a pedicle. They both got well without any drawbacks. It is in this kind of cyst that the operator is liable to tear the bladder, to wound the womb, or to rupture the ureter. In such cases one has to have all one's wits on the alert.

Case 187 was one of a uterine fibroid as large as the adult head, and a cyst of the left ovary weighing sixteen pounds. The right ovary, although sound, was removed on account of the presence of the fibroid. She did well for two days; then symptoms of obstruction set in, which could not be overcome, and she died on the sixth day, without any rise in the temperature. I cannot but think that pressure from the fibroid tumor was the main cause of the difficulty. Obstruction of the bowels after ovariotomy is the dread of all operators. It is due sometimes to the adhesion of a knuckle of intestine to the stump of the pedicle, to the abdominal incision, or to large denuded surfaces, and sometimes to an adventitious band from inflammatory exudation. Paralysis of the intestines from peritonitis will also cause it. I have had my share of such cases, of desperate ones too, and my rule is to get the bowels open as soon as symptoms of obstruction set in. Calomel and belladonna by the mouth, and turpentine by the bowels, are the remedies on which I rely, and they have never failed me, if my memory serves me no trick.

My last fatal case, No. 189, was an incomplete operation, and by many ovariotomists would not, on that account, have been included in the number of ovariotomies; but I think it fairer to do so. The lady was thirty-six years of age, married for nine years and sterile. The tumor was first noticed in June and had quickly developed. She had emaciated rapidly and suffered more or less abdominal pain. On November 19th, Dr. R. N. Downs, of Germantown, whom she had then consulted for the first time, called me in to see her. The womb measured four and a half inches, and was immovably fixed by a bilobed and dense tumor which seemed to spring from it. This tumor bulged low down into Douglas's pouch, and was knobby to the touch. There was evidently ascitic fluid present, but fluctuation could not be elicited from any portion of the tumor. The diagnosis was obscure, it lay between a soft myo fibroma or a sarcoma of the womb. From my standpoint, I was averse to an operation and advised delay. But two weeks later she suffered such agonizing pains, and such oppression from pressure, that I was forced to interfere, much against my will, especially so because a second examination had strengthened me in the idea that the growth was malignant. This pain was so great that the largest doses of morphia combined with chloral did not even allay it, and for the week preceding the operation she did not get any sleep.

On December 18th I operated, being aided by Dr. Jacob Roberts and by my son. There were also present Dr. R. N. Downs, Dr. W. Ulrich, of Chester, Dr. W. L. Taylor, of Philadelphia, and C. Laughlin, of Paris, Ill. A large amount of ascitic fluid escaped, and to my surprise an ovarian cyst, weighing about fifteen pounds, came into view. It was thick-walled, and did not collapse when its compartments were, one after the other, emptied, and I had to prolong the incision through and above the umbilicus. The omentum was adherent; it was of a purple color and its enlarged vessels looked like a bunch of earthworms. I now discovered that the cyst had not a pedicle, but that it ended in a short, hard, and brittle cancerous mass about the size of my fist. I should like then and there to have abandoned the operation, left the cyst *in situ*, and closed up the wound. But I had gone too far to recede. The cyst had been badly torn, for my hand had been inside of it to break up its septa, and it was bleeding profusely. To reach the cancerous mass forming the pedicle, I had to cut away the uncollapsed cyst, and, as I dared not use pressure-forceps for fear of crushing it up, I grasped it with my hand as best I could. But a good deal of blood spurted out, and the outlook was so ghastly that two of the gentlemen present became faint, and one had to leave the room. At last the bleeding mass was transfixed, and I tied it as well as I could, not daring to draw on the ligature too tightly, for fear of cutting through the friable nodules. Some bleeding vessels were also tied separately. A cyst of the left ovary, weighing about

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TABLE OF TWENTY-EIGHT CASES OF OVARIOTOMY.

Total number.	Name and Residence of Previous Medical Attendant.	Age.	Condition.	No. of children.	Previous Tappings.	Place of Operation.	Date of Operation.	Adhesions.	Ovary Removed.	Weight of Tumor.	Length of Incision.	Drainage.	Result.	REMARKS.
161	Dr. F. W. Coover, Harrisburg, Pa.	20	S.	...	1	Private Hosp.	Jan. 10	Pelvic.	R.	15 lbs.	Long.	None	Recovery.	Colloid cyst.
162	Dr. Wood, Coal Port, Pa.	36	M.	5	...	"	Jan. 24	Universal.	R. L.	58 " "	"	"	"	Long and tedious operation; many ligatures.
163	Dr. W. M. L. Ziegler, Philadelphia.	21	S.	...	...	"	Jan. 25	None.	L.	2 "	Short.	"	"	Parovarian cyst.
164	Dr. J. B. McCloskey, Morris, Pa.	23	S.	...	...	"	Jan. 31	None.	R.	10 "	"	"	"	
165	Dr. E. T. Johnson, Dublin, Pa.	54	M.	...	...	Univers. Hosp.	Feb. 7	Omental.	R.	20 "	"	"	"	Malignant colloid; had burst, infecting all abdominal organs.
166	Dr. S. Marks, Milwaukee, Wis.	48	M.	2	...	Private Hosp.	Feb. 14	None.	R. L.	5 "	"	"	"	
167	Dr. W. Richardson, Montrose, Pa.	57	M.	5	...	"	Mar. 7	None.	R. L.	10 "	"	"	"	Parovarian cyst.
168	Dr. R. P. Heilman, Emporium, Pa.	36	M.	3	...	Univers. Hosp.	Mar. 9	None.	R. L	2 "	"	"	"	
169	Dr. T. Woolverton, Trenton, N. J.	49	W.	1	6	Private Hosp.	Mar. 21	None.	L. R.	49 " 1 "	"	"	"	Left ovary cystic; right a dermoid cyst. Bedridden for nine months.
170	Dr. T. R. Bixler, Carlisle, Pa.	45	M.	2	1	"	Apr. 25	Omental, parietal, intestinal.	R.	20 "	Long.	"	"	
171	Dr. F. Herff, San Antonio, Texas.	42	W	...	...	"	May 9	Pelvic.	L. R.	2 "	"	"	"	Multiple fibroids of womb.
172	Dr. J. Marshall, Tuckahoe, N. J.	60	W.	8	...	"	May 16	Parietal, omental, intestinal.	L.	20 "	"	"	"	Appendix vermiformis dissected off cyst.
173	Dr. E. Kitchen, Brumfieldsville, Pa.	39	S.	...	...	"	May 16	Pelvic, parietal.	L. R.	15 " 1 "	Short.	"	"	
174	Dr. G. A. Parker, Southampton, Pa.	38	S.	...	3	Home.	May 25	Parietal, omental.	R. L.	30 "	Long.	"	"	Left ovary removed on account of multiple fibroids of womb.
175	Dr. G. Hemminger, Carlisle, Pa.	31	S.	...	...	Private Hosp.	June 13	Pelvic.	L. R.	1 "	Short.	"	"	
176	Dr. S. M. McCollin, Philadelphia.	23	M.	...	...	"	June 17	Pelvic, omental, intestinal.	R. L.	10 " 1 "	"	"	"	
177	Dr. O. R. Quaintance, Slate Mills, Va.	35	S.	...	...	"	June 17	Pelvic, omental, intestinal.	R. L.	5 " ½ "	Long.	"	"	Right ovary dermoid, and full of hair.
178	Dr. Baily, Sioux City, Iowa.	43	M.	...	...	"	June 22	Universal.	?	54 "	"	Tube.	Death.	Died on table; intra-ligamentous cyst.
179	Dr. W. W. Moody, Sunbury, Pa.	39	M.	4	...	"	July 6	Pelvic.	L.	15 "	Short.	None.	Recovery.	Intra-ligamentous cyst.
180	Dr. E. W. Ekwurzel, Philadelphia.	45	M.	...	1	Home.	July 31	None.	L. R.	50 "	Long	"	"	Malignant colloid; had burst, infecting every abdominal organ.
181	Dr. Darrach, Philadelphia.	74		...	1	"	Sept. 14	None.	L. R.	20 "	Short.	"	"	
182	Dr. G. H. Woods, Pine Grove Mills, Pa.	18	S.	...	...	Private Hosp.	Sept. 24	Universal.	R. L	25 " 1 "	"	"	"	Colloid intra-ligamentous cysts; large one enucleated without a pedicle.
183	Dr. W. Goodell, Philadelphia.	36	S.	...	...	"	Sept. 24	Pelvic.	L. R.	1 "	"	"	"	
184	Dr. R. B. Watson, Lock Haven, Pa.	32	M.	2	...	"	Sept. 26	Parietal.	R. L.	48 "	"	"	"	
185	Dr. G. R. Welchens, Lancaster, Pa.	28	M.	...	...	"	Oct. 10	Intestinal, uterine, and br'd ligam't	R. L.	2 "	"	"	"	
186	Dr. O. P. Rex, Philadelphia.	44	M.	2	...	Home.	Nov. 6	Omental.	R. L.	20 " 2 "	Long	"	"	Malignant cysts.
187	Dr. H. H. Roedel, Lebanon, Pa.	37	S.	...	...	Private Hosp.	Nov. 21	Omental.	L. R.	16 "	Short.	"	Death.	Also large fibroid of womb; died on sixth day from obstruction of bowels.
188	Dr. Isaac Barber, Phillipsburg, N. J.	54	M.	9	3	"	Dec. 16	Parietal, omental.	R.	29 "	"	"	Recovery.	
189	Dr. R. N. Downs, Philadelphia.	36	M.	...	...	"	Dec. 18	Omental, pelvic.	R. L.	15 " 10 "	Long.	Tube.	Death.	Death in twenty-six hours from shock; incomplete operation.

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ten pounds, now appeared. It collapsed upon the withdrawal of its contents, but it was so fastened to the womb, broad ligament, and Douglas's pouch by a mass of cancerous excrescences that I did not dare to disturb them. So I tied it as low down as possible, and cut off the free portion. If I am not in error, this is the first time that I have ever left behind a portion of the cyst. A drainage tube was put in, and the patient removed in a collapsed condition to her bed. She rallied sufficiently on the next day to converse with her family, but much bloody fluid escaped from the drainage tube, and she died in twenty-six hours after the operation.

In the foregoing case, had I known the complications, I would not have operated. But I unhesitatingly assert that, when possible, malignant tumors of the ovaries should be removed. For the improvement which follows is usually something remarkable, and years may elapse before the disease returns. In one of my cases four years of excellent health elapsed before the cancer came back. In such cases both ovaries should always be removed. Two cases in point are Nos. 165 and 180. In each a malignant colloid cyst had burst and had infected every abdominal viscus. In the latter case, indeed, the colloid poison had penetrated even into the abdominal wall through the opening made fruitlessly with a large trocar by her physician. Both patients were in a deplorable condition, with swollen feet, great emaciation, and general cachexia, yet the operation was followed by a marked amelioration of symptoms, and the women are still living and doing well, wonderfully well when one considers the amount of abdominal disease. A. Martin, of Berlin, mentions a case in which there was no return of the disease for seven years after the operation. Ten years after her first operation Schröder removed the second ovary. She lived one year and a half after this.[1]

But there is another class of cases in which malignancy lurks unsuspected in the most benign-looking cyst. Every year I meet with such cases. For instance, Case 149 was operated on, both ovaries being removed on June 13, 1885. She was greatly improved for two months, when cancer attacked the pelvic organs, aud she died November 5th of the same year. Case 158 was operated on November 22, 1885, and she died from malignant disease of the pelvis in August, 1886. Case 150 promptly recovered from a double ovariotomy, to die a year later from metastatic cancer of the liver.

Out of my twenty-nine cases of ovariotomy, twenty-one had adhesions, three had universal adhesions, and eleven very formidable adhesions. This is an unusually large proportion, and I attribute it to the fact that women in this country put off the operation as long as possible. For instance, Case 162 had the tumor for seven years, and at the time of the operation the cyst weighed fifty-eight pounds and was universally attached. Most of my patients come to me only when they are forced to do so by their sufferings or by their discomfort.

Out of my twenty-nine cases there were twenty of double ovariotomy. This is a large number, but I make it a rule to remove the second ovary in all malignant or suspicious cases, in all cases in which, from age, it can be of no use, in all cases in which incipient disease is manifest, and always when I am asked to do so by my patient. I willingly yield to their request, because I have seen several cases of heartrending disappointment, and even death from cystic degeneration of the remaining ovary.

The drainage tube is not a favorite of mine, and I try to dispense with it whenever I can. It is only in cases in which oozing goes on and the peritoneal cavity cannot be kept clean that I resort to drainage. The two cases in which it was used were of that character, and both ended fatally from the severity of the operation. I still adhere to strict Listerism, but while I use the spray, I now turn it away from the wound, and aim more to disinfect the room by it. It is an intolerable nuisance, and I intend soon to give it up in my private infirmary, reserving it for the impure air of a general hospital. The dressing for the wound, which I use, is gauze dipped in Keith's glycerole of carbolic acid, 1 : 8 parts. I have tried powdered iodoform, but it so adheres to the stitches as to make their removal difficult. I have, however, very recently obtained a 50 per cent. iodoform gauze which I shall soon use.

With regard to the question of performing ovariotomy during the catamenial flow, I have on several occasions been compelled to operate at that time, and have had no reason to regret such a course. Cases 176 and 182 were operated on during the monthly flow, and I have successfully performed oöphorectomy under analogous circumstances. Thomas Savage, a very successful ovariotomist, operates in any case whether the woman is menstruating or not, and finds no difference in the result.[1] The fact that a metrostaxis invariably takes place after a double ovariotomy would go to sustain the position which Mr. Savage takes.

Of the twenty-nine cases seven had been previously tapped, and all of them recovered. Yet I cannot too strongly condemn the too prevalent habit of indiscriminate tapping. Apart from the danger of exciting inflammation and septicæmia, and of producing adhesions, tapping may cause the whole abdominal cavity to become infected by the fluid of a papillary or of a colloid cyst. This I have seen several times, and Case 180 is one in point. The consultant in this case tried to evacuate the contents of a colloid cyst. Only a few ounces came away, the rest was too thick. But through the hole made by the trocar a large amount of the contained jelly oozed out into the abdominal cavity, hopelessly poisoning it. Even the abdominal wall immediately around the puncture was infiltrated with it.

[1] Annales de Gynecologie, Mars, 1886, page 221.

SEA-BATHING A CAUSE OF EAR DISEASE.

BY GORHAM BACON, M.D.,
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IT is a well-known fact that during the summer months, sea-bathing is a frequent cause of ear disease. Cold-water bathing, although of great benefit to many persons, frequently leads to chronic catar-

[1] British Medical Journal, April 14, 1883, p. 712.

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rhal deafness, especially to those who have a predisposition to that disease.

The membrana tympani may be ruptured in diving or from the force of a wave striking against the side of the head and face; or, the cold water entering the auditory meatus, may not only set up an inflammation of the canal and drum-head, but may induce a tendency to chronic dermatitis and periostitis of the parts; the middle ear may also become secondarily involved, and occasionally the mastoid is affected from an extension of the inflammation. Still further, an inflammation of the tympanum may occur from water entering the middle ear through the Eustachian tube. I believe this latter frequently to be the explanation of an earache from sea bathing, as surf bathers are especially liable to have water enter the mouth and nasal passages. An acute catarrh of the middle ear is undoubtedly caused also in cold-water bathing from sudden chilling of the surface of the body when overheated, or from remaining in the water for a protracted period.

Children should be especially forbidden to "duck the head," as this frequently is the cause of catarrhal otitis media, and to prevent as much as possible a liability to ear disease while sea-bathing, the person should be careful to keep the head above water, and the auditory canals should be closed with non-absorbent cotton or wool.

Burnett, in his work on the ear, says: "It is noteworthy that no mammal but man goes voluntarily under water without being provided with a means of preventing the water from running into the ears. It is a fact well known to many, that hunting dogs taught to dive become deaf."

CASE I.—R., aged twenty-five, July 18th consulted me, and said that a week ago Sunday he went in bathing, and the following day the left ear began to pain him. Tuesday there was a slight discharge with some blood; he dropped some laudanum and sweet oil into the ear. The pain lasted till Wednesday morning; since then he has been annoyed by tinnitus, and the ear feels stuffed up. There is some autophony. He hears ordinary voice with the left ear.

Examination.—Left membrana tympani congested at the upper portion and slightly below; a small clot of blood on the drum-head, situated just below the umbo.

CASE II.—T. D., aged sixteen, June 26th. The patient said that three days ago he went in bathing, and directly afterward experienced pain in both ears, and since then the pain has been especially bad at night; he has also been suffering from headache.

Examination.—On removing some epithelium and cerumen from the right auditory canal, the membrana tympani is red and lustreless. Left membrana tympani also dull and congested.

CASE III.—Charles L., aged thirteen, July 3d. On Sunday, July 1st, he went in bathing; one hour afterward he had pain of a throbbing character in the left ear, which has continued ever since, with a sense as if something were stopping up the ear. There is no tinnitus or discharge.

Examination showed the left canal congested and tender; the upper portion of the membrana tympani (Shrapnell's membrane) red and swollen; no discharge or perforation.

CASE IV.—Joseph M., aged twenty-two, July 17th, bartender by occupation; he went in bathing July 13th, and the next day found that he had taken cold; he had pain of a pulsating character in the right ear, the pain being worse at night.

Examination.—The right canal contains some cerumen and epithelium; right membrana tympani red and denuded of epithelium.

CASE V.—Edward McC., aged ten, August 18th, says that six days ago he went in bathing, and on the following day began to complain of pain in the left ear, which has lately become very severe; two days ago he felt chilly sensations, and has been sick and feverish; there is no discharge.

Examination.—No pus in the left auditory canal; left membrana tympani red, lustreless, and tumid, especially around Shrapnell's membrane.

Aug. 21. The patient much worse; the pain very severe, especially at night, has not been relieved by the appearance of a purulent discharge, which commenced two days ago. There is marked mastoid pain, especially at night, the mastoid at apex being markedly tender to pressure. The patient looks very anæmic and weak, and before each onset of pain has chilly sensations, followed by fever; does not suffer, however, from headache or nausea. Temperature 101° F. at 5 P.M. Iodoform insufflated.

22d. The pain very much better, and apparently markedly relieved by leeching. He was also given tr. aconit. ℥j, and tr. ipecac. co. ℥ij, every two hours; also bowels were opened by a saline cathartic, The discharge is slight and the mastoid pain very much better. Very little discharge seen at bottom of the canal; membrana tympani is less congested; Politzer inflation gently applied, and iodoform insufflated.

25th. Very much better; no more mastoid pain; discharge very slight. He is quite deaf, and complains of a "stuffed up" feeling in the ear; his general appearance is much improved, and he is no longer pale. The discharge in the canal is very slight; congestion of the membrana tympani less marked; Eustachian tube pervious to Politzerization; inflation of the ear repeated and iodoform insufflated.

29th. No pain; he complains, however, of a slight buzzing tinnitus; discharge slight. Hearing distance, Watch $=\frac{6}{48}$. No discharge seen in the canal; the membrana tympani still red and covered with dry crusts. Politzer inflation repeated. Patient ordered the following tonic to be taken three times daily: ℞.—Potas. iodid. grs. v; syr. ferri iodid. ℥x; syr. hypophos. co. ad ʒij.

Sept. 4. Tinnitus less and very slight now. Hearing distance remains about the same. No discharge in the canal; the membrana tympani less congested and the redness disappearing.

28th. No trouble now with the ear except an occasional tinnitus and no discharge. Hearing distance, Watch $=\frac{18}{48}$. The membrana tympani des-

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quamating; still somewhat reddened and slightly retracted. Politzer inflation.

It will be seen from these cases that cold-water bathing may be the cause of only a slight inflammation of the canal or membrana tympani, or the middle ear may be involved, causing perforation of the drum-head, and in some cases leading to mastoid disease. As regards treatment, in severe cases in which the canal or membrana tympani is very much congested and angry-looking, leeching, or, what is better, a small cupping-glass, if applied to the previously scarified parts in front of the tragus, will very often relieve the pain at once, and cut short the inflammation. Aconite should also be given, especially if there is any fever, and the bowels opened by the administration of a saline cathartic. When the mastoid becomes involved, the cupping-glass should be applied over the mastoid process or just below the auricle. Where there is bulging of the drum-head, causing severe pain, paracentesis should be performed. It is surprising how the pain and inflammation in some cases yield immediately to the local abstraction of blood. I prefer wet-cupping to leeching, if the physician can apply the cupping-glass himself, as it is always at hand, the quantity of blood abstracted can be entirely regulated, and it is much more agreeable to the patient. Patients very seldom, if left to themselves, apply leeches properly to parts about the ear.

In mild cases of otitis media, without perforation of the drum-head, attention to the general health and inflation of air by Politzer's method, are frequently all that is required to effect a cure.

In other cases, where the discharge appears, or the membrana tympani is ruptured, or the mastoid becomes involved, the treatment does not differ from that recommended in similar cases from other causes.

MEDICAL PROGRESS.

ON THE TREATMENT OF NASAL DIPHTHERIA.—REIERSON, of Copenhagen, gives an account of the treatment lately employed with good results in the Copenhagen Fever Hospital in cases of nasal diphtheria. The serious character of this form of diphtheria having been experienced (the author thinks that the pituitary membrane absorbs the micrococci of diphtheria much more quickly than any other mucous membrane, thus giving rise to serious general symptoms) and the usual treatment, by which either the false membranes were removed with forceps or antiseptic liquids injected in the nose, having proved unsatisfactory in results, or impossible in practice, the treatment by medicated bougies has been adopted. They are made according to the following formula:

Cocain. muriat. . . .	$\frac{1}{8}$ to $\frac{1}{5}$ grain.
Boric acid	15 grains.
Amyli } Gummi arab pulv. } . .	āā 1½ grains.
Glycerini	quantum satis.

The length of the bougie for grown-up persons and big children is three and a half inches, the diameter one-fifth of an inch; the same diameter will do for quite small children, the length being only a little shorter, but these bougies contain only $\frac{1}{12}$ grain cocaine (or even less for quite small children) and 10 grains boric acid each. They ought to be stiff and pointed at one end. They are introduced easily and cause hardly any pain or bleeding; one is applied to each inferior meatus, and ought to reach as far as the naso-pharynx. When they are melted, the passage through the nose is often re-established at once, and the mucus and the false membrane are now easily removed by syringing through the nose; but, if necessary, the introduction of the bougies is repeated, one hour being the usual time for them to melt thoroughly. The cocaine acts partly by reducing the swelling, and partly by decreasing the irritation caused by the boric acid, which acts like permanent antiseptic irrigation.—*Journal of Laryngology*, Jan. 1887.

RECENT OBSERVATIONS ON URINE-TESTING.—In an article in the *British Medical Journal* of January 8, 1887, DR. GEORGE JOHNSON speaks as follows, regarding some interesting points in the examination of urine: "My son has been engaged in an elaborate investigation of the reducing agent which is always present in normal urine. The results he will shortly publish in detail. Meanwhile, I may state that he has conclusively proved: 1. That not a trace of glucose is to be found in normal urine; 2. That, as uric acid has no reducing action on picric acid, the chief, if not the sole, constituent of normal urine which reduces picric acid in the presence of potash is kreatinine. He has discovered a simple means of precipitating kreatinine from the urine in combination with a metallic salt, and by a process which has no effect upon any glucose that may be present. A specimen of normal urine which has been thus treated ceases to give the red color when boiled with picric acid and potash, but if, before the separation of the kreatinine, glucose be added to the urine in the proportion of a grain to the ounce, the sugar is found undiminished after the kreatinine has been removed.

"*Urine of Patients who are taking Salicylate of Soda.*—I have often found that the urine of patients who are taking salicylate of soda, when boiled with picric acid and potash, gives a deeper red color than is quite normal, the color being equal to that which would result from the presence of from one to two grains of glucose per ounce. Fehling's solution is also reduced, as it would be by a small amount of glucose. My son has for some time been investigating the nature of this reducing agent. He has ascertained that it is neither glucose nor an excess of kreatinine. It is probably due to some product of metabolism of the salicylate of soda, the precise nature of which remains to be ascertained. The salt itself has no reducing action on either picric acid or cupric oxide.

"*The Potassio-mercuric Iodide Test for Albumen is Fallacious.*—The Albumen Tests Committee of the Clinical Society, in their report, published in the last volume (xix.) of the *Transactions*, state: 'That a solution of potassio-mercuric iodide with citric acid, particularly when used after Heller's method, gives the most delicate and clearly marked reaction.' It is very noteworthy that the committee make no mention of the fact which has often been recorded, and which must now be pretty generally known, that this test causes an opalescence, not to be distinguished from a slight albuminous precipitate, in every normal urine. This reagent appa-

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rently precipitates, not only mucin, but also some other ingredient of normal urine. For it is found that when the mucin in a normal specimen has been precipitated by citric or acetic acid, and then separated by filtration, the addition of the potassio-mercuric iodide to the clear urine causes a further precipitation and opalescence. It is obvious, therefore, that this reagent, if relied upon as a test for a minute trace of albumen, would be seriously misleading."

POTASSIUM PERMANGANATE IN AMENORRHŒA.—DR. MARSHALL, of San Francisco, after employing this drug in fifty cases of amenorrhœa, has arrived at the following conclusions:

1. The permanganate acts satisfactorily in about seventy per cent. of "selected cases."

2. It should be administered one or two hours *after* eating.

The disagreeable action on the stomach may be relieved by combining it with the following:

Oxalate of cerium	1 grain.
Hydrochlorate of cocaine	$\frac{1}{8}$ grain.
Subnitrate of bismuth	5 grains.
Powdered ipecac	$\frac{1}{60}$ grain.

The writer also states that this drug has a marked tonic effect, and generally causes mental exhilaration. —*Canadian Practitioner.*

MANAGEMENT OF SIMPLE CONSTIPATION.—SIR ANDREW CLARK gives the following instructions for the management of simple constipation.

1. On first waking in the morning, and also on going to bed at night, sip slowly from a quarter to half a pint of water, cold or hot.

2. On rising, take a cold or tepid sponge bath, followed by a brisk general towelling.

3. Clothe warmly and loosely; see that there is no constriction about the waist.

4. Take three simple but liberal meals daily; and, if desired, and it does not disagree, take also a slice of bread and butter and a cup of tea in the afternoon. When the tea is used it should not be hot or strong, or infused over five minutes. Avoid pickles, spices, curries, salted or otherwise preserved provisions, pies, pastry, cheese, jams, dried fruits, nuts, all coarse, hard, and indigestible foods taken with a view of moving the bowels, strong tea, and much hot liquid of any kind, with meals.

5. Walk at least half an hour twice daily.

6. Avoid sitting and working long in such a position as will compress or constrict the bowels.

7. Solicit the action of the bowels every day after breakfast, and be patient in soliciting. If you fail in procuring relief one day, wait until the following day, when you will renew the solicitation at the appointed time. And if you fail the second day, you may, continuing the daily solicitation, wait until the fourth day, when assistance should be taken. The simplest and best will be a small enema of equal parts of olive oil and water. The action of this injection will be greatly helped by taking it with the hips raised, and by previously anointing the anus and the lower part of the rectum with vaseline or with oil.

8. If by the use of all these means you fail in establishing the habit of daily or of alternate daily action of the bowels, it may be necessary to take artificial help And your object in doing this is not to produce a very copious dejection, or to provoke several smaller actions; your object is to coax or persuade the bowels to act after the manner of nature by the production of a moderate more or less solid formed discharge. Before having recourse to drugs, you may try, on waking in the morning, massage of the abdomen, practised from right to left along the course of the colon; and you may take at the two greater meals of the day a dessertspoonful or more of the best Lucca oil. It is rather a pleasant addition to potatoes or to green vegetables.

9. If the use of drugs is unavoidable, try the aloin pill. Take one half an hour before the last meal of the day, or just so much of one as will suffice to move the bowels in a natural way the next day after breakfast. If it should produce a very copious motion, or several small motions, the pill is not acting aright; only a fourth, or even less, should be taken for a dose. When the right dose has been found it may be taken daily, or on alternate days, until the habit of daily defecation is established. Then the dose of the pill should be slowly diminished, and eventually artificial help should be withdrawn. The aloin pill is thus composed: ℞.— Aloinæ, ½ gr.; extr. nucis vom., ½ gr.; ferri sulph., ½ gr.; pulv. myrrhæ, ½ gr.; saponis, ½ gr.; fiat pil. 1. If the feces are dry and hard, and *if there is no special weakness of the heart*, half a grain of ipecacuan may be added to each pill. Should the action of the pill be preceded by griping and the character of the action be unequal, half a grain of fresh extract of belladonna will probably remove these disadvantages. If the aloin pill gripes, provokes the discharge of much mucus, or otherwise disagrees, substitute the fluid extract of cascara sagrada, and take from five to twenty drops in an ounce of water either on retiring to bed or before dinner. And when neither aloin nor cascara agrees, you may succeed by taking before the mid-day meal two or three grains each of dried carbonate of soda and powdered rhubarb.

The exact agent employed for the relief of constipation is of much less importance than its mode of operation. If, whatever the agent may be, it succeeds in producing after the manner of nature one moderate formed stool, it may be, if necessary, continued indefinitely without fear of injurious effects. But, treated upon physiological considerations, I have the belief that in the great majority of cases simple constipation may be successfully overcome without recourse to aperients.— *Lancet*, Jan. 1, 1887.

DIAGNOSIS OF CANCER OF THE STOMACH BY THE CHEMICAL EXAMINATION OF ITS SECRETIONS.—DR. DEBOVE, in the *Gazette Hebdomadaire* of December 31, 1886, reports a case in which the diagnosis of cancer of the stomach was impossible without a chemical examination of its contents.

In cases which were not cancerous hydrochloric and lactic acids or hydrochloric acid alone was found, with very rare exceptions; in cancerous cases it was never detected.

The case reported was that of a man, aged thirty-four, who had suffered from progressive enfeeblement, loss of appetite, and gastric pain for nearly a year. Persistent vomiting of food and mucus occurred later.

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On entering the hospital the patient had no tumor, he had never vomited blood or passed blood in his stools; he presented no appearance of especial cachexia.

Washing out the stomach, artificial alimentation, the alkalies in large doses, and strictly regulated diet produced no effect.

Examination of the contents of the stomach showed no hydrochloric acid, but always the presence of lactic acid.

The case was closely watched, and nearly a year after the beginning of his disease a tumor, as large as a small egg, was discovered in the epigastrium, a little to the left of the median line; the diagnosis of cancer was considered assured,

The examination of the contents of the stomach was made as follows: The liquid was filtered as rapidly as possible; in the test for hydrochloric acid gentian-violet (1 : 5000) gave a blue color in the presence of traces of the acid.

Perchloride of iron gave a yellow color when lactic acid was present; a mixture of three drops of iron and ten drops of a solution of carbolic acid resulted, when added to fluid containing lactic acid, in an amethyst or yellowish-blue color.

BICHLORIDE OF MERCURY SOAP.—GASSELER, of Dresden, has prepared a soap with bichloride of mercury and an excess of fatty acids, which can be kept for a long time, and promises to be very useful, not only in the treatment of skin diseases, but also as a disinfectant.

In the *Med. Forschritt*, JONE has given his results in experiments made with a soap containing 1 per cent. of mercurial. He has seen in anthrax the filaments containing the spores lose their infectious properties in thirty seconds, and bacilli were also destroyed very rapidly, The practical advantages of a disinfectant soap are apparent.—*Les Nouveaux Remèdes*, December 24, 1886.

RECENT MEDICINAL CHEMICALS.—At a recent meeting of the Deutsche Naturforscher und Aerzte at Berlin, Mr. E. Merck exhibited a large number of the products of his chemical works, and published a pamphlet containing notes on some of the more important of them, from which we make the following abstract:

Æthoxy-caffeine.—This compound is produced by substituting the group C_2H_5O in place of one hydrogen in caffeine. It forms white, needle-shaped crystals, melting at 140° C., very little soluble in alcohol or ether, insoluble in water, and of strongly basic properties.

Dujardin-Beaumetz (*Journ. de Ph. et Chim.*, 1886, 611) considers it a pure narcotic, particularly useful in headache. It is generally administered in solution in water, by the intervention of salicylate of sodium. Dose 4 to 16 grains per day; in single doses of 4 to 8 grains, or in divided doses of 1½ grains.

The same author has also combined it with cocaine as follows:

Æthoxy-caffeine	4 gr.
Salicylate of sodium . . .	4 gr.
Hydrochlorate of cocaine . .	1½ gr.
Linden-flower water . . .	2 fl. oz.
Syrup	½ fl. oz.

Agaricin ("purissimum, Merck").—The efficacy of this substance (really agaric acid) in relieving the sweating of consumptives has been demonstrated by J. M. Young, Seiffert, and Pröbsting in 1882. It is given in doses of $\frac{1}{12}$ to $\frac{1}{6}$ grain in pills, to which some Dover's powder is usually added, since agaricin often produces loose bowels, sometimes accompanied by violent abdominal pains. Young recommends the following combination:

℞.—Agaricini	8 gr.
Pulv. ipecac. et opii . . .	120 gr.
Altheæ pulv.,	
Mucilag. acaciæ . . .	āā 60 gr.

To be made into 100 pills; 1 or 2 pills to be taken at night.

The hypodermatic administration of agaricin causes pain.

Considerable quantities of Merck's agaricin have been used in Bellevue Hospital for relieving the night-sweats of consumptives, or other patients suffering from the same cause, with uniform success. It is usually given in combination with atropine and aromatic sulphuric acid:

℞.—Agaricini (Merck) . . .	10 gr.
Atropinæ sulphatis . . .	1 gr.
Acidi sulph. arom. . . .	1200 ♏.

Dissolve and filter. *Dose:* 10 minims, containing $\frac{1}{10}$ grain of agaricin, $\frac{1}{120}$ grain of atropine sulphate, and 10 minims of aromatic sulphuric acid. To be administered in syrup or simple elixir.

Aloin.—Merck's aloin is "barbaloin"—that is, it is the aloin extracted from Barbadoes aloes.

May be used in doses of 2 to 4 grains.

Codeine Phosphate.—The introduction of this salt has rendered the hypodermatic use of the alkaloid possible. It is recommended highly in diabetes, in doses of 1 grain three times daily, increasing every week by 1 grain, until about 9 grains are reached. Cod-liver oil should be given at the same time (Smith; Hermann). In morphinism, Leppmann recommends the alternate administration of one-third to seven-eighths grain of this salt, and eight grains of monobromated camphor.

Colchicin.—The pure crystallized principle is a powerful poison and must be used with caution. The dose, in gout and rheumatism, is $\frac{1}{120}$ to $\frac{1}{80}$ grain two or three times daily. Not to be recommended for subcutaneous use.

Colocynthin, the glucoside of colocynth, is soluble in water and alcohol. When administered internally, or *subcutaneously*, it acts as a purgative, but the hypodermatic employment is painful. Injected into the rectum it causes purging within one hour. Dose, internally, 1½ to 6 grains; hypodermatically, ⅙ to ⅓ grain, dissolved in water. Possibly, when combined with cocaine, the hypodermatic injection may be rendered painless. It would be very advantageous if it could be used in this way, as there are many cases where it would be desirable to be able to administer a purgative hypodermatically.—*American Druggist*, January, 1887.

COCAINE IN SEA-SICKNESS.—OTTO has treated this most disagreeable of maladies by an aqueous solution of hydrochlorate of cocaine, 1 to 10, of which five drops are given three or four times daily on a bit of ice.—*Gazette Hebdomadaire*, December 17, 1886.

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SATURDAY, JANUARY 29, 1887.

OSTEOPLASTIC RESECTION OF THE FOOT.

AMONG the operations of excision at the ankle-joint, one of the most ingenious is that which was first practised in 1871, by WLADIMIROFF, and brought into general use ten years later by MIKULICZ, who made certain improvements in its technique. This operation was called "artificial pes equinus," by Wladimiroff, and "osteoplastic resection of the foot," by Mikulicz. The former of these names indicates the result of the operation; the latter, rather vaguely indicates its character. It consists essentially in a resection of the lower ends of the tibia and fibula with the whole of the astragalus and calcaneum, and the posterior portion of the cuboid and scaphoid bones, followed by placing the cut surfaces of the scaphoid and cuboid bones in contact with those of the tibia and fibula, and closure of the wound. HABERERN proposed suturing the approximated bones, in order to secure better union, and this suggestion was carried out by SKLIFOSSOWSKY in 1882, and by FISCHER in 1884.

The incisions practised by Wladimiroff differ somewhat from those used and recommended by Mikulicz, which have been judged to be an improvement upon those proposed by the originator of the operation. In Mikulicz's operation the patient is placed prone upon the abdomen, and an incision is carried across the sole of the foot to the bones, from the tubercle of the scaphoid to just behind the base of the fifth metatarsal bone. From each end of this incision another is carried upward to the corresponding malleolus, and between the upper ends of these a fourth incision is carried across the back of the ankle-joint, dividing the tendo Achillis. The ankle-joint is next opened and the astragalus and calcaneum dissected out from behind. The lower ends of the tibia and fibula and the posterior surfaces of the scaphoid and cuboid bones are then sawn off, the foot is placed in a position of pes equinus, with the cut bone surfaces in contact; and the wound is closed. Sutures or pegs may be used to fix the bones in contact, or they may not, as the operator thinks best. In the cases in which this last step has been taken the results have not been any better than in those in which it has been omitted, although theoretically there can be no question that it is a proper one.

This operation comes into rivalry chiefly with the amputations of Syme and of Pirogoff, when the latter seem to be indicated in cases of serious injury, or of caries of the astragalus and calcaneum. Mikulicz did his first operation in 1880 for an intractable syphilitic ulcer of the foot; Remsen did one in 1884 for deformity after a complicated and neglected fracture at the lower end of the leg; Niehans operated in 1884 (?) for an injury of the ankle. All the other operations, to the records of which we have access, were done for caries.

In a recent paper in the *Archiv für klinische Chirurgie*, Bd. xxxiii. Heft 3, 1886, ZESAS has collated the statistics of nineteen operations by the method of Wladimiroff or of Mikulicz, in all of which, with one exception, the functional result was excellent. In one case gangrene of the foot followed the operation, and it was necessary to amputate in the lower third of the leg. Out of sixteen cases operated upon for caries, speedy recurrence is noted in four; so that the hope that this operation would furnish a better protection than a less radical one has not been fulfilled so far.

The special merit of Mikulicz's operation consists in the functional result, which is better than that following a Syme's or a Pirogoff's amputation. Perhaps it might be better still if care were taken to spare the tendon of the peroneus longus muscle and if the tendo Achillis were sutured to the periosteum of the scaphoid and cuboid bones. This, so far as we know, has never been attempted, and it might prove more difficult in practice than it seems to be in theory. Nevertheless, we offer the suggestion for the consideration of those who may hereafter undertake the Wladimiroff-Mikulicz operation.

RECTAL INJECTIONS OF GAS.

THE treatment of chronic pulmonary diseases is of daily interest to the practitioner, who welcomes eagerly new methods which hold out a hope of relief to troublesome symptoms, or of cure in a long standing and obstinate case. New remedies, like new servants, seem always to do well at first, but, with the one as with the other, it takes time before the good and bad qualities can be discovered. A

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few years ago we were using respirators and inhalers in the treatment of phthisis and chronic bronchial troubles, and the journals were filled with reports of wonderful results obtained by this method. Ask the nearest pharmacist and he will tell you that now the sales of respirators in a year are not equal to what they were in a week, and that practically the method has been abandoned. Meanwhile the fight goes bravely on, and as the enemy has not yielded to the attack *a fronte*, the tactics have changed, and we are asked to assault him *a tergo*.

It has long been known that an interchange takes place between the gases of the blood in the intestinal capillaries and those contained in the bowel. Some time ago BERNARD and CORNIL called the attention of the French Academy to the fact that gases injected into the bowel pass to the lung and are exhaled. Relying upon this physiological fact, BERGERON, of Lyons, and several other French therapeutists have advocated the treatment of chronic pulmonary diseases by the rectal injection of gases. Already the reports of the success in chronic bronchitis, asthma, and phthisis, are so favorable that the method is likely to come into very general use, and we may soon expect here to have a Wolff's bottle by the side of each phthisical patient, who will take his medicine thrice daily through a rubber tube and a rectal canula. Indeed, the plan has been for some time in use at the Philadelphia Hospital.

At the Société de Thérapeutique there has recently been a discussion on the subject, and from the report in the *Gazette Hebdomadaire*, No. 51, 1886, we glean the following information. DUJARDIN-BEAUMETZ stated that he had twenty-five patients under the treatment, and preferred the sulphuretted hydrogen to the carbonic acid, or to the sulphuretted or carbonated waters. The carbonic acid alone always caused colic without any improvement, but the addition of sulphuretted hydrogen caused a diminution of the cough and of the expectoration, while the sleep returned and the appetite improved. These good effects were not always obtained until after treatment had been employed for some time. He had also used eucalyptus and iodoform, but without benefit. In bronchial catarrh the improvement was in some cases most marked and rapid. PAUL recommended a sulphur water charged under pressure with carbonic acid. In siphons this is readily available, and the gas is allowed to enter the bowel until there is a feeling of tension and heat, and a tendency to expel the canula. About one quart of gas is injected at each sitting; as much as two quarts usually causes dilatation of the transverse colon and painful tympany.

The general opinion seemed favorable to a further trial of the method. It was remarked that the patients complained of not receiving any medicine under this plan of treatment, and they were not satisfied with the injections alone.

FATAL POISONING BY WATER-GAS.

THE Troy cases of poisoning by the inhalation of water-gas are likely to attract widespread attention because of the recent largely extended use throughout the United States of this gas for fuel and illuminating purposes, and we are fortunate in being able in this issue to lay before our readers Dr. Bontecou's report of their medical history.

The danger of water-gas is greatly increased by reason of its having no perceptible odor, and the Troy catastrophe shows that while a house may be unconnected with the gas mains its occupants may not be secure from its poisonous influence, and that, while ignorant that they are inhaling it, they may gradually and unconsciously pass into a narcotic sleep from which they may never awake.

The liability to the leakage of gas from the mains, and its filtration through the soil into houses, is increased in winter by the more frequent breakage of pipes, and also, perhaps, by the closing of windows and the artificial heating of rooms, incident to that season, which invite the entrance and accumulation of the escaping gas.

The inhalation of water-gas proves poisonous through the presence of carbonic oxide. The symptoms noticed are dizziness, faintness, severe headache, with sense of constriction, epigastric pain, vomiting, stupefaction, and, finally, coma and death. The chances of recovery decrease in proportion to the length of time the gas has been inhaled, and the blood has become saturated with it.

The practical lesson to be learned wherever water-gas is used, is that on the earliest occurrence of any one of these symptoms of poisoning the atmosphere of the room should be thoroughly changed immediately by opening the windows, and if on their closure these symptoms reappear, it may be reasonably suspected that there is an escape of gas in or near the house. When the symptoms of narcotic poisoning are established, cold affusions, stimulants, venesection, and artificial respiration are demanded, in addition. In cases in which the exposure to the gas has continued for some hours, and coma is pronounced, these measures are likely to prove unavailing, and transfusion, or refusion should, also, be employed. This latter measure, which consists in withdrawing the poisoned blood, oxygenating and defibrinating it, and then returning it to the circulation, has given, in some cases, encouraging results, as shown by Dr. Halsted, in a valuable paper which appeared in THE MEDICAL NEWS of Dec. 8, 1883.

We are glad to learn that the manufacture of this gas has been suspended at Troy until some method

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can be devised to give to it an odor by which its presence may be detected, and it may thus be robbed of its greatest danger.

A REMARKABLE OUTBREAK OF TYPHOID FEVER.

BROUARDEL has communicated to the Academy of Sciences the details of a localized outbreak of typhoid fever in which it is claimed that the specific bacillus was found in the contaminated water.

The facts, as given in the *Gazette Hebdomadaire*, No. 51, 1886, are briefly as follows: During the months of August and September, twenty-three persons had occupied three contiguous houses at Pierrefonds, of whom twenty were attacked with typhoid fever. Four members of one family died. Insanitary conditions of the most aggravated kind existed. The water supply was from shallow wells filled by percolation from a neighboring stream; one cesspool was situated at a distance of thirty feet from a well, the other at a distance of sixty-five feet. The soil was light and porous, and the level of the water was below that of the cesspools. The interesting feature of the investigation was the detection, by Chautemesse, Director of the Bacteriological Laboratory of the College of France, of the bacilli regarded as the specific agent of typhoid fever. On October 18th they were present in large numbers in the water supplied to the house in which the four deaths had occurred. On October 29th there were fewer, and on November 21st none could be found. In the other wells similar organisms did not exist.

To demonstrate the identity of the bacilli found in the water with those of the typhoid patients, the spleen of one was punctured with a sterilized trocar on the tenth day of the illness, and in cultures of the material colonies developed in the same morphological and biological characters as those obtained from the well water. The coloration and sporulation of the bacilli were identical.

This is not the first time that the typhoid bacillus has been found in drinking water, but we do not know of an instance in which the details have been so carefully worked out as in the Pierrefonds epidemic.

EXPERT FEES IN OHIO.

IT is likely that the question of special compensation for expert testimony will soon be brought to an issue before the courts of Ohio, ultimately even before the Supreme Court itself, through Dr. F. H. Darby, of Morrow, who was recently summoned by the State as an expert in a murder case. He refused to answer the following question unless paid a fee as an expert: "State whether in wounds like this there would be immediate gaping, or would the lips of the wound for a time remain in contact or nearly so?" The judge declined to grant the fee asked, because he held that there was no law for it, and Dr. Darby, for his refusal to reply, was sent to jail for contempt, and he was only released, after several days' confinement, on his own recognizance. We understand his case will be made a test one.

Dr. Darby based his refusal on the ground that he was asked to give expert testimony, and, as it was not claimed that he had any personal knowledge of the case, the issue is a square one. In some similar cases which have been decided in other States, the physician was a witness as to facts, and refused to answer when questioned as to matters of opinion. In several such cases the Court has not sustained the physician, refusing to discriminate between a pure question of fact and an incidental one of theory.

In the State of Iowa the law reads that "Witnesses called to testify only to an opinion founded on special study or experience in any branch of science, or to make scientific or professional examinations, and state the results thereof, shall receive additional compensation, to be fixed by the Court, with reference to the value of the time employed, and the degree of learning or skill required." North Carolina, Rhode Island, and Minnesota have similar laws.

The sympathies of the profession are with Dr. Darby in the important stand he has taken, and we hope that he may receive material aid in its prosecution, and that his case will reach a favorable decision.

THE DEATH OF EDWARD LIVINGSTON YOUMANS, M.D., in New York City, on January 18th, occurred from pulmonary tuberculosis, supervening upon a severe pneumonia of two years ago. He was born in 1821, and graduated in medicine at the University of Vermont. He never followed medicine as a profession, but adopted that of a lecturer upon scientific subjects, and became the author of numerous books on those subjects. His name was widely known as the editor of the *Popular Science Monthly*, with which journal he was identified from its inception in 1871.

DR. WILLIAM STEVENSON ROBERTSON died at his birth-place, Muscatine, Iowa, on January 20th, aged fifty-six years. He was President of the Iowa State Board of Health, and Professor of the Theory and Practice of Medicine in the Iowa State University.

WE have upon several occasions, in giving the statistics of ovariotomy in Italy, referred to the work of Prof. d'Antona, of Naples, who now probably stands, in number of cases, at the head of the ovariotomists in that country. Of 48 completed and reported ovariotomies, up to 1885, for the removal of single and double cystomata, but 7 had

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resulted fatally, and by his last report of 13 cases, there was no death. From a tabular record prepared in September, 1886, we learn, that he has performed the following operations, with their appended results.

	Cases.	Recovered.	Died.
Ovariotomies for unilateral and bilateral sarcomata	2	2	
Abdominal hysterectomy for cancer, by Freund's method	1	...	1
Vaginal hysterectomy for cancer	5	5	
Supravaginal hysterectomy for cancer, myofibromata	11	7	4
Myotomy for myofibromata, "periuterine and broad ligament"	4	3	1
Laparotomy for removal of "epiploic adeno-sarcoma"	1	1	
Laparotomy for removal of peritoneal cysts	1	1	
Laparotomy for removal of subperitoneal sarcomata	3	2	1
Nephrectomies	9	5	4
Nephrolithotomy	1	1	
	38	27	11

THE MEDICAL SOCIETY OF KING'S COUNTY, N. Y., held its annual meeting at Brooklyn, on January 16, 1887, and elected the following officers for the ensuing year:

President.—William Wallace, M.D.
Vice-President.—A. Ross Matheson, M.D.
Secretary.—C. Delavergne, M.D.
Treasurer.—W. B. Chase, M.D.
Librarian.—J. H. Hunt, M.D.

BARKER'S work on *Puerperal Diseases* and Emmet's *Gynecology* have recently been translated into German and published by Abel, of Leipzig.

PROFESSOR LUDWIG BANDL died during the first week of December, 1886, at Prague, where he had taken the Chair of Obstetrics and Gynecology made vacant by Breisky during the past summer. Graduated in 1867 at Vienna, he had been private docent, instructor in the Vienna Polyclinic, and Professor (extraordinary) of Gynecology in the University of Vienna. His writings upon *Rupture of the Uterus, and Its Mechanism*, and his article upon "The Diseases of the Tubes, of the Ligaments, of the Pelvic Peritoneum, and the Pelvic Cellular Tissue, including Extrauterine Pregnancy," in Billroth's *Hand-book on the Diseases of Women*, have made his name familiar. He was a popular and earnest teacher, and his studies regarding the uterine contraction-ring, which has borne his name, have excited much discussion among obstetricians.

THE Central Texas Medical Association recently held its second quarterly meeting, at which the President, Dr. F. M. Pitts, delivered an address, and Drs. W. L. Barber and H. W. Dudley read papers on typho-ma arial fever.

OWING to the fact that the American Medical Association will hold its annual meeting in Chicago, on June 7th to 10th next, thus conflicting with the date for the annual meeting of the Michigan State Medical Society, the Executive Committee have designated the 12th and 13th day of May next for the annual meeting of the State Medical Society.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, January 6, 1887.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

DR. WM. GOODELL read a paper entitled,

A YEAR'S WORK IN OVARIOTOMY.

(See page 119.)

DR. PARISH cited a few instances of evil results following abdominal tapping for purposes of diagnosis or for relief from distention. In his first ovariotomy case, with the view of clinching the diagnosis, he aspirated and withdrew a few drachms of somewhat cloudy ovarian fluid. The patient presented some symptoms which in a few days became grave; pain in the tumor, rigors, rapid and feeble pulse, and high temperature. He operated during the existence of these symptoms, and found suppuration of the interior of the cyst and extensive anterior adhesions; both conditions doubtless dependent upon the aspiration; the patient recovered.

A few years ago a well-known medical gentleman of this city aspirated a tumor supposed to be a multilocular ovarian cyst. Though the fluid was stated to verify the diagnosis, the patient miscarried in one or two days of twins at about the fifth month, and the tumor proved to be simply a uterus enlarged by means of a multiple pregnancy. He recently saw in the Philadelphia Hospital a shocking case of labor, in which active labor pains began one week previous to her admission to the hospital. No urine had been voided for several days. Pregnancy was denied by the patient and her friends, and was not recognized by two physicians. The woman was small and deformed, and in the abdomen were two fluctuating tumors, one due to a distended bladder, the other the uterus. Aspiration was resorted to in both tumors, a procedure that was not only unnecessary for diagnostic purposes in this case, but which would probably have been highly detrimental to the patient, had not the neglected and protracted labor already determined a rapidly fatal result. Though tapping for relief and especially for diagnosis is less frequently resorted to than was the case a few years ago, yet even now it is too frequently done.

In reference to the development of cancer or sarcoma, after the removal of seemingly benign ovarian tumors, he recently saw an example in a patient operated on by Dr. Hickman and himself. A large cyst of one ovary and a small one of the other, both free from the appearance of malignancy, were removed,

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and the patient made a tardy recovery. In about a year sarcomatous growths developed in the neck and axilla, and a large one in the abdominal wall of the left lumbar region. The patient died a few weeks ago, and the autopsy was made by Dr. Morris Longstreth; and though the sarcomas referred to were present, there was no intrapelvic disease. An interesting feature was the total disappearance of the ligature of iron-dyed-silk with which the pedicles and several vessels were secured about eighteen months previously.

DR. H. A. KELLY stated that while simple tapping was often in no way injurious, it was also often productive of grave injury, and one of his own cases illustrated this point very well. The patient having a cyst weighing 100 pounds, was tapped in the left iliac region by a notorious homœopathic surgeon. She had previously suffered from pressure symptoms. From now on she suffered from severe inflammatory pains around the puncture, and at the operation the extensive dense adhesions at this point constituted the chief difficulty. She is now well, more than a year since the operation. It is a cause for mutual congratulation for American operators, that their results are becoming so good. The whole credit of this lies in the thorough use of antiseptic agents and the rendering the field of operation completely *aseptic*.

He believes, too, that our cases are more difficult than those being operated on abroad. The tumors we operate upon are older, and with the increasing age of an ovarian tumor occur many changes detrimental to the patient, depression of vitality from pressure symptoms, diversion of so much albumen from the system at large, surcharge of the emunctories, as well as adhesions and unfavorable changes within the tumor itself. Keith's dressing of a strongly carbolized glycerine has rendered excellent results in Dr. Kelly's hands in at least twenty cases.

DR. GOODELL, in answer to a question by Dr. Baer, said he operated during menstruation merely from pressure of time on the part of the patient, and little or no effect was produced on the discharge by the operation.

DR. JOSEPH PRICE, in commenting upon some points alluded to in Dr. Goodell's paper fearing the contaminated atmosphere of a general hospital, cited the statistics of two hospitals: Special Department of Birmingham General Hospital and Birmingham Hospital for Women, covering a period from Jan. 1878, to Sept. 1885.

Special Department of General Hospital, ovariotomy 35 cases, 11 deaths; mortality, 31.4 per cent.

Birmingham Hospital for Women, ovariotomy 268 cases, 19 deaths; mortality, 7.1 per cent.

During the same period the total number of intra-abdominal operations in the Special Department of General Hospital, 85 cases, with 21 deaths; mortality, 24.7 per cent.

Birmingham Hospital for Women, 632 cases with 49 deaths; mortality, 7.7 per cent.

One point as to the value of the spray, quoting from Keith's report of cases treated in the Royal Infirmary, Edinburgh.

Carbolic acid spray cases:

Ovariotomy, 21 cases: 18 cured, 5 died.
Hysterectomy for fibroid, 2 cases: 2 cured.
Battey's operation, 1 case: 1 died.
24 cases with 4 deaths; mortality, 16.66 per cent.

Boro-glyceride spray cases:

Double ovariotomy, with hysterectomy, 1 case died.
Hysterectomy for fibroid, 1 case recovered.
Result with boro-glyceride spray, 2 cases with 1 death.

No spray:

Ovariotomy, 47 cases: 46 cured, 1 died.
Hysterectomy for fibroid, 7 cases: 7 cured.
Battey for fibroid, 1 case, cured.
Interstitial pregnancy, 1 case, cured.
56 cases with 1 death.

Mr. Keith says: "No cases of serous cysts of the broad ligament were operated on. These all were treated by tapping, and none of them have returned." One such case that Dr. Price saw died a few days later. Of Dr. Keith's cases, one-half had no adhesions.

DR. MONTGOMERY considered Dr. Goodell's success gratifying, especially after tapping. A patient came to him one month after tapping. She had a high pulse, septicæmia, large adhesions to viscera, etc., putrid clots in the tumor, and died on the fifth day with a temperature of 105°. He does not approve of tapping broad ligament cysts. One patient with such a tumor was tapped seven times. He afterward removed the tumor, and did not have a single vessel to tie. In this case, the peritoneum had been pushed up by the tumor, and was not opened until late in the operation.

DR. GOODELL made a few remarks on the subject of statistics. Dr. Keith's have improved, not because he has given up the spray, but because he has grown to his work. Dr. Goodell will give up the spray because it is an intolerable nuisance. As to the question of malignancy of ovarian tumors, it has been said that "all ovarian tumors are malignant, and should be so treated." This is too sweeping; but the tumors should in all cases be removed as soon as discovered.

DR. R. P. HARRIS desired Dr. Parish to report the present condition of the patient from whom he had removed the ovarian tumor exhibited by him before the Society, at its meeting on March 4, 1886, the day after the operation. Dr. Parish had requested Dr. Harris, who had seen her much more recently than he had, to report her condition. Dr. Harris stated that notwithstanding the fact that the tumor was largely solid, that it had grown rapidly, that the solid portion had an appearance of malignancy, and that there was a small morbid growth projecting upward from the fundus uteri, the lady was to all appearance a well woman. He saw her on December 26, when she claimed to have perfectly recovered her health and strength after a very prolonged convalescence. Her appearance and activity certainly indicated that her statement was correct. The uterine nodule must have been a fibroid, as, had it been cancerous, it must have materially developed in nine months. The future of this case will be of much interest.

DR. CHARLES MEIGS WILSON reported

THREE SUCCESSFUL TAIT OPERATIONS.

These cases are the first of a series performed without the use of carbolic acid solutions for instruments, and without the spray. Hydrant water, boiled for six hours, was used for the instruments and sponges in the first and second cases, and a solution of mercuric chloride, 1 to 5000, for like purposes in the third. The wounds in all three were dressed after the manner of Keith.

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The incisions were less than two inches in length. More than three months has elapsed since the operation in each case before it has been reported. It has seemed best to publish the cases in this manner, because the vast majority of all cases recover without accident from the operation, and hence mere statistics of the healing of the wound amounts to little but evidence of individual skill. Statistics of the real relief afforded by the operation are what the profession needs in order to give the operation its just place in modern surgical procedures.

Case I. Myo-fibroma of the uterus.—This case first came under observation in July, 1886. She gave her history as follows: Miss McM., æt. thirty-two, nullipara. For the last sixteen months has had a rapidly growing tumor of the abdomen; menses profuse; catamenial intervals ten to fifteen days; for the past four months has rarely been free from bloody vaginal discharge. She was emaciated, anæmic, and alarmed about the constant bloody discharge. She had reflex pains, but no ovarian tenderness or pain. She was obstinately constipated, owing to the pressure of the tumor upon the rectum. She was found to have a large fibroid tumor of the fundus and anterior wall of the uterus. The enlarged uterus was incarcerated in the cavity of the pelvis and was very immobile. The sound entered the uterus seven and a quarter inches. Abdominal section was performed, September 20, 1886, with the assistance of Drs. E. Wilson, C. P. Noble, and D. Longaker. The tubes were as thick as the finger, they had thin walls, and were distended with blood. The ovaries were oversize, and the right one was cystic. The ligature slipped from the uterine end of the left tube, and before it could be secured there was free hemorrhage. The operation lasted forty minutes. Convalescence was retarded by abscess of one of the suture tracts. The patient made an excellent recovery. Present condition: Has lost no blood since the second day after the operation; appetite good, and is able to resume her occupation of seamstress; frequently walks two miles to her work: all pain has disappeared; has gained twenty-two pounds since the operation, December 20th. The sound entered the uterus three and a quarter inches; the tumor was greatly reduced in size.

Case II. Hystero-epilepsy.—Mrs. C., æt. thirty, primipara. Had always enjoyed good health until after the birth of her child, six years ago. She had been delivered with forceps, and the cervix and perineum had been badly torn. She was in bed nine weeks after the confinement. No clear history of her puerperal trouble could be obtained. She has had profuse catamenial discharges since. About six months after the birth of her child, she first commenced to have attacks of loss of consciousness, followed by epileptiform seizures at her menstrual periods. These gradually became so violent as to place her life in seeming jeopardy during their occurrence, and left her utterly prostrated. She had been in bed about twenty days out of every month for four years. Her epileptic seizures occurred only at her monthly periods. Everything that her medical attendant could think of had been done for her, and her family were about to place her in an insane asylum. The ovaries and tubes were removed October 3, 1886. The operation was an easy and simple one. The patient made a speedy recovery without any untoward symptoms. Present condition: She is now able to earn her living as a yarn picker, working full time; has had no discharge of blood; little or no pain; *and not one seizure since the day of operation.*

Case III. Tubercular pyosalpinx.—Miss E. R., æt. nineteen, nullipara. This patient was also operated upon on October 3, 1886. Since menstruation began, at fifteen years of age, she has had constant, dull, aching pain, deep seated in the pelvis. At her menstrual epochs "her agony has been unbearable." Menses have always been slight in quantity and regular as to time. She presented a badly nourished appearance. Physical examination showed marked evidence of general tuberculosis. In spite of this fact, and in view of her intense menstrual pain, oöphorectomy was deemed justifiable and was accordingly done. Both tubes were of the size of large Bologna sausages, and both ovaries were cystic. Tubes and ovaries were matted in a mass of adhesions, which rendered the operation very tedious, it lasting one hour and ten minutes. Microscopic examination of sections of the tubes showed colonies of the Bacillus tuberculosis. Both tubes were filled with a greenish pus which was very offensive. The recovery was complicated by an arthritis, the symptoms of which were so obscure as to render it difficult to say whether it was septic, rheumatoid, or hysterical. She eventually made a good recovery. Present condition: Her physician, Dr. Walter E. Bibby, of Kensington, Philadelphia, reports: "She is entirely free from pain; able to walk about, and to attend to light household duties. Under the use of cod-liver oil, malt, and alcohol her tubercular trouble seems to be making little or no progress." As her peritoneum showed evidence of tuberculosis, as an experiment, bichloride solution, 1 to 8000, was used to wash out the abdominal cavity.

In each case the abdominal cavity was thoroughly flooded with boiled water before it was closed. The drainage tube was not used. Uncarbolized Chinese silk ligatures and silkworm-gut sutures were used. No anodyne was given after the operation, and no food was given for thirty-six hours after operation.

DR. H. A. KELLY was particularly interested in the tuberculous tubes, and regretted that an examination of the uterine discharges had not been made, as it would almost certainly have established the diagnosis. As to the right to operate upon a patient having a cavity in the lung, no general rule can be laid down; every such case stands by itself, and much must be left to the judgment of the operator.

DR. BAER would hesitate for some time before operating in a case of general tuberculosis with a pulmonary cavity. He did not think tuberculosis could cause pyosalpingitis.

DR. KELLY remarked that at least two cases have been observed here and many more abroad, and it has been recently formulated by Prof. Hegar among the tubal diseases which may require operation.

DR. PARISH thought the general condition of the patient outside of the pulmonary disease should decide the question. Severe pain should be relieved, unless the patient had a very short time to live.

HYDROSALPINX.

DR. H. A. KELLY exhibited the tubes of a patient who had suffered from metrorrhagia over thirteen years.

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She had been in five large hospitals in Philadelphia, without relief, and had faithfully tried every plan of treatment, systemic and per vaginam. The diagnosis of enlarged tubes was made before operation, and on removal with their respective ovaries, the tubes were found, one as large as a Bologna sausage, and the other a small sausage, with a limpid fluid. She has lost no blood since the metrostaxis following the operation, about six weeks ago.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 20, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. J. H. RIPLEY read a paper on

THE VALUE OF QUININE AS AN ANTIPYRETIC IN PNEUMONIA.

The experiments on which his observations were based were commenced in 1877, at St. Francis's Hospital, New York, and since that time had been continued by successive house physicians acting under his direction. Although a much larger number were made, the experiments available for the purpose under consideration were 48 in number, and the patients who were the subjects of these, varied from 19 to 45 years of age. The plan carried out was to give quinine as early as possible in the course of the disease; but only in cases in which the temperature was at least 103°, and which were uncomplicated. Each patient was watched for several hours before the experiment was commenced, and all the observations of temperature were taken in the rectum. No experiment lasted less than four hours, and the majority were continued for from 12 to 15 hours. The time of day at which the quinine was administered varied; but when only a single dose was given in the twenty-four hours it was given in the morning. In 20 of the experiments a single dose of 20 grains was given, and in 8 a single dose of 40 grains. It was usually given in solution, but in some instances was used hypodermatically. In two of the patients there was no reduction of temperature whatever noted after the use of quinine, and in two a slight elevation occurred. The reduction of temperature effected by the quinine was always of short duration, and it was frequently less than an hour. The effect of the remedy on the pulse and respiration was not a constant guide to its effect on the temperature. It varied in different cases, but the pulse and temperature were usually reduced in frequency.

In about half the cases the temperature was lowered between one and two degrees under the use of quinine. In the other half, the reduction was less than half a degree. The gain thus made was never held for more than from two to four hours. In many cases the antipyretic effect was, no doubt, only apparent, and the reduced temperature was really due to natural causes.

The conclusion arrived at by Dr. Ripley was, that quinine is a feeble and uncertain antipyretic in pneumonia. But this is not all. It has a bad effect on the appetite and digestion, and not infrequently excites nausea and vomiting. In addition, it is liable to produce marked cardiac weakness, profuse cold perspiration, and profound nervous depression. Opisthotonos was noticed in one instance, and in many cases it caused epistaxis. In three cases the urine was examined before and after the ingestion of quinine in large doses; and in one, the urine, previously normal, was found to contain large quantities of albumen, hyaline casts, and renal mucus after the use of the drug. These bad effects, he thought, more than counterbalanced any good effects that could be attributed to it.

Moreover, he could not see that it had shortened the natural course of the disease in any case. In some instances the pneumonic consolidation had extended under its use. In general, he believed, that too much importance is, at the present day, attached to the reduction of temperature in febrile diseases. In typhoid and other fevers much better results had been obtained at St. Francis's Hospital since heroic measures for reducing temperature had been given up. That quinine has any effect in preventing cell migration, as alleged by certain authors, he thought was extremely doubtful. In conclusion, he expressed the opinion that large doses of quinine in pneumonia should be abandoned. If an antipyretic effect were desired, we possess much more efficient agents in antipyrin and salicylate of sodium.

DR. PUTNAM JACOBI said that of 100 cases of pneumonia in children of which she had notes, 59 were available for statistical purposes. In these the average age was two and a half years, and 7 deaths were known to have occurred. She spoke of the effect of quinine on the physical signs and on the fever, and said that no decisive results could be gathered from the cases. Five grains, night and morning, seemed as efficient as larger doses in children. The conclusion that she arrived at was that quinine is not to be relied upon as an antipyretic, and that it is an efficient remedy in the pneumonias of children only so far as it affects the morbid process present. It tends, she thinks, to limit the secondary extension of the disease.

DR. J. LEWIS SMITH said that as Dr. Jacobi's cases occurred in the out-door department of the Mount Sinai Hospital, it could not be known whether the quinine was vomited or not. This drug is exceedingly liable to excite nausea in children, and the best way that he had found to administer it was in connection with wild cherry bark. He was in the habit of administering one large dose with a view to preventing cell migration; after which he preferred to give it in doses of from one to one and a half grains every four hours. It is a useful tonic, and he thinks that it prevents secondary lesions.

DR. FRUITNIGHT said that the common practice had been to give quinine for almost everything; but since the introduction of other antipyretics he thought the tendency has been to discard this agent to a large extent. The reaction was like the swinging back of the pendulum, and he believed it the part of prudence to pursue a middle course. His experience with quinine as an antipyretic in pneumonia coincided with that of Dr. Ripley; but at the same time he intends to continue to use the drug in this disease, not for its antipyretic, but for its sustaining effect. To secure this it should be given in small doses. One great danger in pneumonia is cardiac failure, and in large doses quinine is supposed to have a tendency to produce

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this. In small doses, however, no such effect is observed.

DR. F. A. CASTLE said that his experience fully bore out that of Dr. Ripley as to the uselessness of quinine in pneumonia. Ten years ago Beriz recommended it in large doses, giving as much as seventy grains in the twenty-four hours. Personally he had never carried it to this extent, but he had used it in as large quantities as the stomach would bear. He had found, however, that if the temperature was to be reduced by quinine, it must be at the expense of the nutrition of the patient. In the broncho-pneumonia of children, if carried beyond tonic doses, it had a bad effect on the stomach, and also tended to produce delirium. For the last five years he had almost entirely abandoned this remedy in pneumonia. As regards sustaining the heart, he thought we have a much more reliable agent than quinine in digitalis.

DR. C. F. BILLINGTON said that, like Dr. J. Lewis Smith, he had found quinine very apt to produce vomiting in children, and he had, therefore, found great satisfaction in giving it in the form of a suppository. In case any rectal or anal irritation is caused by this method, it can easily be entirely avoided by the use of a simple apparatus provided with a piston-rod, which can now be obtained for the purpose. By employing this the administration can be kept up for any length of time desired without the slightest inconvenience. He, therefore, considered the method of giving quinine by the rectum one of great practical value. In pneumonia he had been disappointed in quinine as an antipyretic, and he had also found that its use is attended with other bad results. In children the natural tendency is to recover, both in broncho-pneumonia and in ordinary pneumonia, and a large number of cases get well without any treatment at all.

DR. L. EMMETT HOLT said that of twenty cases of pneumonia in children treated by him with quinine or cinchonidia, in twelve the drug was given in sufficient doses and for a sufficient length of time to enable him to form some opinion of its action; and in nine it was a total failure so far as any effect upon the temperature was produced. He gave as much as sixteen to thirty grains a day to children from one to two and a half years old, and in two or three cases the temperature rose steadily after the quinine had been taken. He said that his own feeling was that, given in small doses it is useless as an antipyretic, and given in large ones it is dangerous. In high fever he had met with much better results from the judicious and continued use of the cold pack, and by this means he had been able to save some cases which were to all appearances entirely hopeless. In general, he was doubtful about the value of antipyretic treatment in pneumonia, unless the temperature were unusually high. For the past two years he had abandoned the use of quinine entirely in pneumonia, as a rule, as he found that it almost always produced vomiting or other bad results; and he had obtained as good, and better results, since he had given it up. It was, however, of very decided advantage in convalescence, and in protracted cases of broncho-pneumonia, if given in small doses.

THE PRESIDENT said that he had seen some marked changes in opinion in regard to quinine in New York during the last thirty years. At one time much was expected from the administration of half a grain to a grain a few times a day to adults, and of even smaller doses to children. It was true that a larger number of cases got well, but they were the kind of cases in which the natural tendency is to recovery. It is only in bad cases that we can really judge of the effect of any remedy. At that time he said he had gained a very great reputation for over-dosing by giving six, eight, ten, and twelve grains of quinine to children. Since then professional opinion had entirely changed, but he still adhered to the practice. He laid stress on the desirability of giving the drug at certain times of the day. It should usually be given in the morning, when the intermission occurred, and full doses might be given in two portions: say five grains at 8 o'clock, and five grains at 11 o'clock. If it did not produce an unpleasant effect upon the stomach, he would recommend that one full dose should be given in the morning. He thought that a good deal of the inefficiency of the remedy which had been spoken of was owing to the condition of the stomach arising from the febrile state, in consequence of which it did not absorb properly; so that it would not be digested. The same was true as regards administration by the rectum. If the quinine were given hypodermatically, however, in a short time a good effect would be observed. The temperature would go down to an extent that could not be produced by quinine administered in any other way. The preparation of quinine which he now used for this purpose was the carbamide, on account of its solubility, and he recommended a trial of this method.

It was not worth while to give quinine for its antipyretic effect unless the temperature was over 102°. It should, by no means. be given in every case of pneumonia, as only occasional cases require it. Antipyrin has an excellent effect, if the fever is very high. In protracted cases, in which resolution does not take place, much benefit can be derived from quinine in divided doses in the morning, with Dover's powder at night to secure rest.

DR. RIPLEY, in closing the discussion, said that in quite a large number of the cases referred to in the paper the quinine was given by hypodermatic injection; yet the result was practically the same as when given by the mouth. In many of the cases of prolonged pneumonia in children spoken of, he thought there was an associated pleurisy. In young subjects it is often difficult to recognize this. As to the preparation for hypodermatic use, he had employed the muriate in strong solution, and had found it answer very well. He had never produced anything more than cellulitis by the method; and this had not gone on to suppuration. In regard to the matter of antipyretics, he said that sixty cases of measles had occurred at an asylum with which he was connected, and that antipyrin had been resorted to at the onset in a number of them. It was apparent, however, that these cases did not do as well as those which were treated by the ordinary simple methods.

THE PRESIDENT remarked that it was not safe to use a concentrated solution in hypodermatic injections, and related a case in which a strong solution of the muriate of quinia was employed. The patient died, and at the autopsy the quinine salt was found deposited in the connective tissue, only the water of the solution having been absorbed.

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PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, January 12, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. J. H. BRINTON made some remarks

ON THE USE OF WHALEBONE BOUGIES IN THE TREATMENT OF URETHRAL STRICTURES.

He stated his belief that in these instruments we have an efficient mode of treating stricture, provided they be properly constructed, and skilfully manipulated. As he has never been quite satisfied with the whalebone filiforms of the shops, he makes his own, and with these he has experienced comparatively little difficulty in treating stricture, and in relieving obstinate cases of retention. His experience has convinced him that all organic urethral strictures of non-traumatic origin are pervious to the filiform bougie, patiently and systematically essayed. He purchases his whalebone from J. F. Tobin, 82 Duane Street, N. Y., at about two dollars a gross. Each piece will make two bougies. In preparing them he first cuts off the end transversely so as to get rid of any tendency to split. He then rounds the end by rubbing it lightly on a sheet of emery paper gummed upon a board. He then makes the extremity bulb-shaped. He was told that the bulb is usually produced by the action of a file. He makes the bulb extremity by placing the end of the whalebone in a groove on the board and shaves or scrapes it from the end with a very sharp knife. He then shaves down the shank and neck in like manner in the opposite direction, until he has formed a conical neck from three to four inches long, and of almost capillary thickness as it approaches the bulb. The shape of the bulbar ends demands some dexterity in handling the knife, and to insure accuracy he does this under a lens of low power. As the filiform whalebone bougie is the guide upon or over which metallic instruments are to be passed, each one should be carefully fitted. This can be done by frequently passing it upward and downward through the tunnelled perforation in the beak or extremity of each and every instrument, in conjunction with which it may in future be used.

In endeavoring to pass a stricture he makes the first attempt with a single whalebone; if it passes, well and good. If it does not go through, he follows it with others, perhaps five or six, until the follicles or folds of the mucous membrane near the stricture are occupied. Then by patiently essaying the inserted filiforms, he almost always succeeds in getting beyond the stricture at the first sitting. There is a caution to be observed as to the time of making use of filiform instruments. Their application, in cases of tight stricture, should be primary—that is, one cannot expect to succeed with them if they have been preceded on the same day by the attempted introduction of round-ended instruments, the tendency of which undoubtedly is to obscure or close in some way the narrow opening of a resisting stricture, and thus to render its detection more than usually difficult. He always uses the straight filiform. The whalebone, when once introduced, serves as a guide to the metallic catheter, or stretching instrument. This may be the tunnelled catheter, or any of the various forms of dilators or divulsors; preferably, he thinks, that of Sir Henry Thompson, followed by the powerful and most efficient instrument designed by Prof. S. W, Gross, and which registers from 16 to 40 of the French scale.

In using metallic instruments in conjunction with the filiforms, there is one point to which attention has not been directed. We are ordinarily told to slide the metallic instrument over the whalebone through the stricture into the bladder; in so doing, the whalebone may be cut at the seat of stricture. He avoids this accident in this manner: Having passed the whalebone into the bladder, he carries the metallic instrument—threaded on this, as it were—down until he reaches the stricture, the point of resistance. He then ceases to push the metallic instrument along the filiform, but slightly withdrawing the latter to gain a little by the conicity, he grasps both instruments between his thumb and finger, and gently carries them on together. In this way he is almost certain to pass the resisting point, and, if the stricture be single, to reach the bladder.

In employing the stretching instrument he usually separates the blades as far as No. 30 or No. 35 of the French scale, and on its withdrawal, introduces a steel bougie of about the same calibre, to see that all is right, and that the urethra is clear. The bougie is then removed, and is not reintroduced until the third or fourth day. The after-treatment consists in the hypodermatic use of morphia, full doses of quinine, and in a milk diet.

In retention dependent upon tight and irritable stricture, not readily overcome by the catheter, he has often succeeded by simply passing a whalebone into the bladder and leaving it *in situ*. The urine will readily pass along the filiform by capillary action, and the steady dribbling thus established will in a short time empty the bladder. The presence of the whalebone serves also to render the stricture less tight, and so facilitates the after-passage of metallic instruments should their use be considered desirable.

DR. S. W. GROSS said that the younger members of the profession, who are not accustomed to the use of filiform bougies, should not put too much confidence in them, as they do not always pass with readiness through a small stricture, or even through a large one. He differed from the speaker in regard to the usefulness of the twisted bougies. In the great majority of strictures, the orifice is eccentric. A twisted bougie will often pass after straight one has failed, although the urethra has been packed with them. In strictures not the result of traumatism, the obstruction does not arise from the organic stricture itself. A man may have been suffering with stricture for some time, and the calibre of the urethra have been gradually narrowing until the stream of urine becomes very small. In this condition he exposes himself to cold and wet, and in the course of a few hours is unable to pass urine. In such a case the obstruction is not due directly to the organic stricture, but there is superadded spasm of the muscles of the urethra, and it is spasm which we have to overcome rather than the contraction itself. In such a case, the patient being under the influence of an anæsthetic, he carries a medium sized instrument—say one whose shaft measures No. 16 and whose point is No. 13 of the French scale—down to the stricture, supporting, if necessary, the curve of the instrument with the finger

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on the perineum or in the rectum. In the majority of cases gentle pressure for a few minutes will enable the instrument to pass into the bladder. He has succeeded in this way in cases where he had failed to introduce a filiform bougie.

The instrument to which Dr. Brinton has referred, he had made more particularly for the purpose for which he uses it. At the time that he invented it, he was a rather firm believer in the treatment of stricture by divulsion. He does not employ this method now, although he would use it in a case of retention of urine. It is no more dangerous than cutting, and cutting is no more dangerous than divulsion, but internal incision can be more accurately limited than divulsion. With the latter method we tear not only the stricture, but also the mucous membrane at some distance in front of and behind it. In a specimen in his possession where divulsion was employed, there were no less than nine rents in the mucous membrane, and the rent in the stricture was oblique and had not gone completely through it. This method will do in superficial strictures, but in hard fibrous strictures we have to supplement this operation with urethrotomy. It is for this reason that he has given up divulsion for internal urethrotomy, and he does not resort to this latter operation so frequently as he formerly did. When the patient is within convenient distance, he much prefers in ordinary cases of inflammatory stricture, and in recent cases more particularly, to resort to gradual dilatation. He has reached the firm conviction that the cases in which a radical cure is produced by divulsion, internal incision, or external incision, are so rare that it is seldom worth while to resort to these operations.

DR. CHARLES B. NANCREDE said that when he intends to do any radical operation, he prefers incision, for then he knows exactly what he is doing. Filiform bougies are not always easily passed through a stricture, even when it is of comparatively large size. Where he has failed to pass the filiform bougie, he has frequently succeeded with a metallic instrument of fair size.

DR. BRINTON said that the remarks which have been made only show that every surgeon operates according to the habit of his own mind and hand. While he does not claim that the method which he has described is better than that of others, he can only say that it is one which he has followed for many years, which has yielded him great success in the past, and to which he looks forward with confidence in the future.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, January 4, 1887.

THE PRESIDENT, C. L. DANA, M.D., IN THE CHAIR.

DR. PUTNAM JACOBI read a

NOTE ON APHASIA WITH REFERENCE TO LOSS OF NOUNS.

Seventeen cases out of a total of 116 analyzed offered this peculiarity, which has not failed to attract the notice of authors. Several explanations have been offered, none of which seemed to the writer completely satisfactory. Anatomical data are not at present sufficient to throw much light on the matter further than to demonstrate that the symptom is probably always associated with diffuse, and not with focal, lesions. These lesions cannot fail to lie on the sensory side of the speech mechanism, and for reasons detailed at length in the paper must especially involve the paths between the auditory and visual centres, through which the auditory impression or sign of the object became habitually associated with the visual impressions. The writer maintained that the act of speech always involves an entire proposition, framed in the suprasensory concept centres (probably the superadded convolutions of Broadbent). This proposition constituted a verbal conglomerate, a unity to the mind expressing it, whatever the number of separate parts into which it might be broken up. Such actual verbal conglomerates remain in many primitive languages, as that of the Greenlanders and North American Indians, where entire sentences are often inflected like a single noun or verb. In our languages the conglomerate or proposition to be expressed is composed of the reminiscences of auditory signs which have become fused with similar reminiscences of visual impressions of things and their relations. If the visuo-auditory paths are interrupted the signs or names of things will be dislocated from their habitual association with the other characters of such things, while the visual impressions themselves remain, and enter directly into the verbal conglomerate. All other parts of speech than nouns, expressing complete intellectual relations, and although remotely connected with impressions registered in the visual centre, are immediately associated only with the processes and registrations of the suprasensory or intellectual centres. While these are intact, therefore, and unless focal lesions have altogether obliterated the memory of language, the speech of relations will be remembered and revived in expression. The objects which are involved in the relations of the conglomerate proposition will no longer be revived in consciousness by their names, but by means of their visual impressions only. These can be expressed by gestures, mimicry, or periphrases, the loss of the auditory sign is thus compensated.

DR. H. D. CHAPIN read a paper on

PERIPHERAL NEURITIS AND THE PAINFUL PARALYSES OF EARLY LIFE.

He said there had been great scarcity of autopsies in comparison to the frequency of paralyses in children. For that reason a very careful clinical study was necessary, interpreted in the later knowledge of anatomy and physiology of the central and peripheral nerves. The writer had met an atrophic form of paralysis differing at its inception, development, and result, from the spinal paralyses with which he was familiar. Most of the autopsies had been made many years after the paralysis, when death had taken place from some other cause. There having been but few autopsies in proportion to the number and variety of cases of paralysis, there seemed rather a slender basis for the theory of exclusive spinal paralysis of childhood. Laborde's case is mentioned where a tabetic neuritis existed with sclerosis of the antero-lateral horns, while the ganglion cells were found normal. Robin's case was cited where no lesion of the cord was discovered. Such a case would show that paralysis is not necessarily always spinal. Barwell's theory was incidentally mentioned. He claimed that infantile paralysis is purely peripheral,

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involving the ultimate fibrillæ of the nerves among the muscular elements. Later Leiden advanced a more rational explanation when he considered that in atrophic paralysis there may be neuritis with spinal cord lesion, and that, instead of such forms of paralysis always originating in the spinal cord, they may have their beginning in any part of the motor apparatus, then spreading to other parts or remaining limited to the part first affected. Leiden claims that where complete recovery takes place, the morbid processes always remain peripheric. Leiden's theory is accepted by the author of the paper as affording satisfactory explanation for certain cases that he has observed clinically. The histories of three cases were given in which paralysis was gradual at the onset, and attended by great and persistent pain. Pain was one of the most marked symptoms, and principally at the extremities—legs and feet. Most of these cases lasted several months, and then, to the surprise of the writer, slowly recovered. Atrophy was present. One of the cases appeared strongly rheumatic; in the other two the cause was uncertain. Malarial poisoning appeared to be able to produce a more or less severe form of multiple neuritis resulting in paralysis. The history of a mild case was given which recovered under quinine.

Several cases were related in which children with malarial fever were seized with painful paralysis, lasting in one case over four months, followed by recovery. A possible explanation of pain is that it is due to the marked general congestion of the gray matter of the spinal cord. The author stated that in his cases, and others like them, there were no other symptoms showing irritation in the deeper parts of the cord. The general congestion or myelitis should cause bladder symptoms, bed sores, and other disturbances. Histories of two cases of lead paralysis in young children seen by the author were given. The lesions were regarded as largely peripheric. Cold usually attacks by preference the peripheric system of nerves. The loss of power sometimes following rheumatism is also probably of this nature. Any morbid blood condition appears able to produce a peripheral paralysis in early life, particularly the acute infectious diseases, especially diphtheria. The lesion in diphtheria is now known to be largely peripheric.

The object of the paper is suggestive, not dogmatic. The author has gladly availed himself of recent studies in peripheral neuritis tending to throw light upon some of the paralyses of children which have caused much perplexity. The great differences in the clinical behavior of paralyses in early life, in duration and curability, must admit of different anatomical and pathological explanations.

Dr. M. ALLAN STARR did not know of any recorded case in a patient under twenty-four years of age in which a lesion of a peripheral nerve had been found at autopsy which would account for the paralysis; and while there was great probability in the statements made by the author, they yet lacked confirmation by autopsy. The points had been brought out very well with regard to the distinctions between peripheral neuritis and anterior poliomyelitis, but he would take exception to what had been said regarding the rapidity of the onset. There were many cases of acute onset of peripheral neuritis, the patient having fever and chill, and the limbs within twenty-four hours becoming entirely immovable. Too much attention could not be given to the usually great tenderness in the muscles and nerves in multiple neuritis.

DR. RUDISCH said that he was the first to observe, as long ago as eight or nine years, a form of polioneuritis leading to paralysis and atrophy, and which followed affections of the joint, often so-called rheumatic affections. We now saw often enough an affection of one or more joints with inflammation, followed after awhile by paralysis, usually curable.

DR. FISHER said a girl, thirteen or fourteen years of age, was brought to the dispensary with the history that one morning, after taking cold, she woke up with paralysis of the upper and lower extremities. At that time she had only paralysis in one leg, which he supposed, without thought of neuritis, to be ordinary poliomyelitis. Rapid improvement took place, and she recovered within six weeks, and the minister who brought her reported the case as one cured by faith. Dr. Fisher was unable to say whether the case was an affection of the anterior cornua or one of multiple neuritis.

DR. SACHS thought we should not be influenced too much by the present fashion, and call all, or most, of the cases formerly regarded as poliomyelitis cases of multiple neuritis. Referring to one of the cases related in the paper, and the symptom of pain, he said too much stress should not be laid upon it unless it was severe, persistent, and located distinctly along the tract of a peripheral nerve.

DR. LESZYNSKY regarded pain as a prominent symptom of neuritis, absent in the majority or all of the cases of simple poliomyelitis. The pains present in some of Dr. Chapin's cases reminded him of the pain from straining the tendons of the extensor muscles which had been for some time in a paralyzed state.

DR. CHAPIN thought that a neuritis would occasionally explain cases which could not be accounted for on the supposition of a spinal lesion, and he would rather say halt! to the universal spinal cause of disease. With regard to pain, it is difficult to locate it along a particular nerve in children, but in his cases it was acute and persistent, and not due simply to stretching of tendons.

CORRESPONDENCE.

THE MEDICAL SIGNERS OF THE DECLARATION OF INDEPENDENCE.

To the Editor of THE MEDICAL NEWS,

SIR: *The Boston Medical and Surgical Journal* makes the following remarks on a portion of my Centennial Address:

"The statement in the recent address of the President of the College of Physicians of Philadelphia, that Rush 'was the only physician whose name is on that energetic arraignment of the Crown' (the Declaration of Independence) should not pass unchallenged. Josiah Bartlett, of New Hampshire, and Lyman Hall, of Georgia, were successful practising physicians; Oliver Wolcott, of Connecticut, studied for the profession."

My critic might have added Matthew Thornton's name to his list. My answer to the friendly challenge is this:

Josiah Bartlett is said by Sanderson and Thacher to

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from them. For instance, a Russian doctor who fails to attend a patient when called upon to do so, commits a legal offense, the punishment for which is a fine varying from 5 to 100 rubles, or, in case of gravity, a term of three months' imprisonment. This is a much better means of keeping a medical man up to the mark, where the patient is not a "paying" one, than the remote prospect of an inquest before a medical coroner. I observe, too, that in Russia medical fees are regulated by law, which is also not a bad idea.—*London Truth.*

POISONED BY A COBRA.—The *Morning Star* of Jaffna, in Ceylon, reports the death of the taxidermist of the Victoria Museum in that town from the bite of a cobra, under curious circumstances. While feeding a cobra, which he thought was harmless from previous extraction of the poison bag, it suddenly bit his hand. For a few minutes he took no notice, thinking the bite harmless, but pain and nausea soon began. Carbolic acid was applied, ligatures were bound round the arm, an incision was made at the bite, and the blood of the arm was wholly removed. Various antidotes were used, but the unfortunate man lost the power of speech, and soon after every muscle seemed to have become paralyzed, and breathing entirely ceased. Artificial respiration was, therefore, resorted to, and this operation was unceasingly continued for nine hours, when at last the patient made an attempt to breathe, and soon regained consciousness enough to make his wants known. He steadily improved until the Friday, the accident having taken place on a Wednesday, and then astonished those around him by stating that during the severe operation of Wednesday night he was conscious of all that was taking place, but was unable to make his feelings known, not having power over a single muscle. It would seem that the poison paralyzed the nerves of motion, but not those of feeling, for he could see and hear and feel, although the physician, even by touching the eyeball, could get no response either of feeling or consciousness. His partial recovery was, however, followed by a high fever and inflammation of the lungs, and he died, perfectly conscious, on following Sunday.

PREVENTIVE INOCULATIONS IN HYDROPHOBIA IN VIENNA.—Dr. Ullmann, assistant of Professor Albert, who has spent some weeks in Paris, studying Pasteur's method of preventive inoculations for hydrophobia, has recently established in Vienna a station for preventive inoculations. From June 28th till now eighty-five persons bitten by rabid animals were inoculated with the best success. The rabid condition of the animals by which the patients had been attacked was stated in all these cases. According to the reports received, all the patients are in good health.

UNMUZZLED DOGS IN LONDON.—The metropolitan police order for the muzzling of dogs, which came into force December 10, 1885, was last week withdrawn. That it has been extremely beneficial in its operation is shown by the fact that whereas in the first week of its enforcement there were recorded 46 cases of rabies, and 1 death; in January the number of cases fell to 27, and 1 death; in February there were 14 cases, and no deaths. The number of rabid dogs found in the streets since this order has been in force has also sensibly diminished. In July the number was 16, in August 13, September 9, October 4, and in November about 12. During 1885, there were no fewer than 373 cases of rabies reported to the metropolitan police, and 26 deaths occurred in London alone.

THE LATE JOHN P. GRAY, M.D.—The members of the Council of the New York State Medical Association, while humbly submitting to the decrees of Providence, realize with much grief that the year now closing is made notably sad in the loss by death of so many of their Fellows whose labors have largely contributed to the honor, dignity, and usefulness of the medical profession.

They now mourn the loss of the second president, Dr. JOHN PURDUE GRAY, whose aid, wise councils, and personal work, have been of such signal service.

In common with all the Fellows of the Association, and with the medical profession at large, they sorrow for the death of one who had rendered himself so useful to the State in the guidance of the charitable work in the department of medicine, in which he had become a shining light.

The Council, therefore, resolved that the above be published in the forthcoming volume of the *Transactions* of the Association, and in the medical journals, and that a copy thereof be transmitted to the family of the deceased.

E. D. FERGUSON,
Secretary.

NOTES AND QUERIES.

PHYSICIANS WHO SIGNED THE DECLARATION OF INDEPENDENCE.

To the Editor of THE MEDICAL NEWS,

SIR: Dr. S. Weir Mitchell, in his Commemorative Address (THE MEDICAL NEWS, Jan. 8, 1887), is quoted as saying of Dr. Benjamin Rush: "When timid men fell out of the Continental Congress, he was elected to that body, that he might sign the Declaration of Independence, and was the only physician whose name is on that energetic arraignment of the crown." Three other signers of that declaration are said to have been physicians, viz., Dr. Josiah Bartlett, of New Hampshire; Dr. Matthew Thornton, of the same province, who served with distinction at the seige of Louisburg, 1745, as a surgeon; and Dr. Lyman Hall, of Georgia.

Dr. Rush was probably the greatest of them all, but these were good men and true, and should not be forgotten.

Yours, JOSEPH SHARP.

KANSAS CITY, MO., Jan. 16, 1887.

CORRIGENDA.

Page 85, second column, second line from bottom, *insert after* "ankylosis," "must be extremely rare. The only examples."

Page 88, second column, nineteenth line, *for* "unfortunate," *read* "important."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 18 TO JANUARY 24, 1887.

FORWOOD, W. H., *Major and Surgeon.*—Ordered for duty at Fort Meade, Dakota Territory.—*S. O. 5, Department of Dakota,* January 14, 1887.

POPE, B. F., *Major and Surgeon.*—Ordered for duty at Fort Clark, Texas.—*S. O. 15, A. G. O.*, January 19, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL LECTURES.

THE MIDDLETON GOLDSMITH LECTURES.

Delivered under the Direction of the New York Pathological Society.

BY M. ALLEN STARR, M.D., PH.D.,

PROFESSOR OF NERVOUS DISEASES IN NEW YORK POLYCLINIC.

LECTURE I.

MULTIPLE NEURITIS AND ITS RELATION TO CERTAIN PERIPHERAL NEUROSES.

IN inaugurating the course of lectures which bears the name of the founder, it is becoming that some expression of gratitude should be made to Dr. Middleton Goldsmith. This can hardly be associated with any form of personal encomium, since that would be as distasteful to him as it is needless before this Society, which owes its existence in part to his exertion. It is proper, however, to emphasize our appreciation of the motives which have led to the establishment of this lectureship. Every one knows that in the rapid progress of medical science, in the great and needful division of labor which that progress has made imperative, there is offered to each individual worker a vast mass of facts which cannot be easily grasped or even readily comprehended. To classify these facts, to weigh their importance, to draw logical conclusions from them, and to present these conclusions in a clear and accessible form is a work of no little magnitude, but of absolute necessity. To accomplish this specialists are at work in every department, and it may be well to emphasize the fact that it is the necessity for their labor, rather than any temporary fashion, that has led to that specialization in medical science which is so often harshly criticised. But special studies lose half their value if they are not made generally available. And it is just here that a lectureship such as this has its use. It enables the results of individual labor to reach beyond the specialist, to be placed before the general practitioner in a simple but comprehensive way. There is, therefore, no means by which an individual can make his influence more widely and permanently felt than by the endowment of such a foundation. For when his personal activity has of necessity ceased with the natural termination of an honorable career he may be sure that, yearly, facts and results are proclaimed in his name of immeasurable service to his successors and of benefit to the profession.

And now, before proceeding to the subject which is to occupy our attention for a time, let me express my obligation for the honor which this Society has conferred in inviting me to inaugurate this course of lectures. It is an honor to which I have no claim, and the duty incurred is one which I feel incapable of performing satisfactorily. I must beg your indulgence in the performance of the task you have laid upon me, and if I succeed in eliciting your interest I know that it will be because the subject we are to study together has a novelty which may compensate for the defects of its presentation.

The discovery of a new disease is never made suddenly. It is a gradual process, and certain stages in the progress toward its complete recognition may be observed. There is first the period of clinical observation, when isolated cases of an unfamiliar and mysterious affection are recorded as curiosities. To this succeeds the period of diagnosis, when, by a comparison of the now numerous cases, a clinical picture of the disease is gradually filled out. In this stage there is much to impede the progress of discovery; for, not content with an analysis of symptoms, and a grouping of cases, the majority of observers offer theoretical explanations of the nature of the new affection, and an element of speculation enters which often obscures the facts. There is, however, a real progress in this period, for it is characterized by inductive reasoning from fixed data, and as a result reliable conclusions are reached which make a diagnosis possible. The third period is that of pathological discovery, where the morbid changes lying at the base of the disease are accurately ascertained. In this stage erroneous theories are eliminated, true explanations for various symptoms become self-evident, and the exact nature of the affection is determined. The disease has now a status of its own. And at first this might seem to be the final stage in the progress of discovery. But it is not. There remains a period of etiological classification, when conditions, formerly supposed to be dissimilar, are found to have a common basis, when the pathological changes are ascertained to be the same, although the clinical pictures have varied, and when classification of the various forms is rendered possible and a definition of the disease is reached.

Such a gradual advance toward general recognition is well illustrated by the history of multiple neuritis, which is to engage our attention at the present time.

I think we may claim that one of the first cases presented was by an American physician, Dr. James Jackson, of Boston, in 1822.[1] In a paper "On a Peculiar Disease Resulting from the Use of Ardent Spirits," which he named arthrodynia, he gives a most graphic picture of what we now know to be one form of multiple neuritis. He says, "This disease comes on gradually. It commences with pain in the lower limbs, but especially in the feet, and afterward extends to the hands and arms. The hands may be affected first in some instances, and in all cases in an advanced state the pain is more severe in the feet and hands than in the upper part of the limbs. The pain is excruciating, but varies in degrees at different times. It is accompanied by a distressing feeling of numbness. After the disease has continued a short time, there take place some contractions of the fingers and toes, and inability to use these

[1] New England Journal of Medicine and Surgery, vol. xi. p. 351.

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parts freely. At length the hands and feet become nearly useless, the flexor muscles manifesting, as in other diseases, greater power than the extensors. The whole body diminishes in size, unless it be the abdomen, but the face does not exhibit the appearance of emaciation common to many visceral diseases. The diminution is especially observable in the feet and hands; and at some time the skin of these parts acquires a peculiar appearance. The same appearance is noticed in a slighter degree in the skin of other parts. This appearance consists in a great smoothness and shining, with a sort of fineness of the skin. The integuments look as if tight and stretched, without rugæ or wrinkles, somewhat as when the subjacent parts are swollen; but the skin is not discolored. Yet in this disease there is not any effusion under the skin, and the character which this assumes arises from some change in the organ itself. The most characteristic symptoms are manifested in the limbs, but the pain is not limited to these —and other symptoms are exhibited in other parts. The pain sometimes shoots suddenly up one or both legs, and in one case it frequently passed up the back and then forward to the pit of the stomach. The functions of the stomach are always impaired; the mind is weakened; sleep is prevented by pain. I believe that this disease is always fatal when the use of spirituous liquors is not abandoned before the powers of the digestive organs are greatly impaired."

It is hardly possible, even at the present day, to add to this description, which portrays in strikingly vivid language the main features of one form of multiple neuritis.

The next observations of importance in establishing a clinical picture were made by Magnus Huss, who, in his work upon chronic alcoholism, in 1852, gave a very complete description of alcoholic nervous symptoms, dividing the cases into paralytic, anæsthetic, convulsive, epileptic, and hyperæsthetic forms. But not content with the clinical side, he advanced to pathological hypothesis, and ascribed all the various symptoms to lesions in the central nervous system. His description was amplified and completed by Lancereaux, in 1864, in an article upon alcoholism in the *Dictionnaire Encyclopédique des Sciences Médicales*. But the pathology of the disease was still a matter of speculation.

In 1855 the great work of Duchenne was published,[1] and in it a number of cases are recorded which we now recognize as multiple neuritis. In these cases there were sensory disturbances, consisting of pain, numbness, and loss of sensation; motor disturbances, consisting of paralysis, with atrophy, especially marked in the distal parts of the extremities, and attended by a loss of faradic contractility in the paralyzed muscles; and cyanosis, coolness, and increased sweating in the affected limbs. Duchenne grouped these cases together under the title "Paralysie Générale Spinale Subaigüe Ascendante," because he thought a gradual advancing lesion in the spinal cord, from below upward, would explain the symptom. It is true that he found no macroscopic change in the cord in the only case in which he made an autopsy. But when, under the leadership of the French school, from 1860 to 1865, the microscopic appearances in nervous lesions began to be studied, the hypothesis of Duchenne at once appeared to be verified, for it was found that such symptoms as numbness, pain, and anæsthesia were associated with lesions of the posterior columns of the spinal cord. And it was also proven that atrophic paralysis was caused by a degeneration of the ganglion-cells of the anterior gray horns of the cord, not necessarily visible to the naked eye. It seemed an easy step to the conclusion that when these symptoms occurred together, the entire spinal cord was the seat of disease, and that wherever they occurred a spinal lesion was progressing. The pathology of this form of paralysis appeared to be definitely ascertained, and for many years the fallacy of such a conclusion was not detected. All atrophic paralysis was invariably referred to spinal lesions, because spinal lesions may cause atrophic paralysis.

But facts rarely accommodate themselves permanently to theories, and after a time a mass of very unwieldy facts began to accumulate. Cases of atrophic paralysis without spinal lesion were observed, and these threw doubt upon the theoretical pathology. The period of true pathological observation had begun, and gradually went on to completion. In 1864 Duménil reported the following case, which deserves to be cited, as it is the first in which an autopsy established the existence of a widespread disease in the peripheral nerves as a cause of sensory, motor, and trophic symptoms.

Observation I.—A tailor, aged sixty-one, after suffering from prickling in the toes for two weeks, was suddenly taken with weakness in the left arm and right leg, and a few days later by the same paresis in the left leg. Within five days he could not stand or walk. The paralyzed feet hung flaccid, and were totally paralyzed; the thighs could be moved freely. Anæsthesia was found on the right sole and calf, and on the left foot and outer side of the leg. In the muscles of the hands and forearms a considerable atrophy, with paralysis, developed. The faradic contractility was abolished in the paralyzed muscles. He complained of a painful numbness in the paralyzed limbs up to the knees, and involving the hands. No improvement; death in four and a half months.

Autopsy: Spinal cord and nerve-roots were normal. The finer nerve branches in the legs and hands were degenerated, only a small number of nerve-fibres being found. Single fibres showed no continuous myelin sheath, but this was segmented and granular. There was an increase of connective tissue, and many fat-cells in the nerves.[1]

This case being of an anomalous character excited very little attention. Two years later, however, Duménil reported another, and published an elaborate article on peripheral paralysis, in which he said: "My own observations have convinced me firmly that many paralyses of obscure origin are caused by true spontaneous neuritis."[2] The second case, which, with the first, led to this conclusion, has been cited by Leyden as a case of neuritis, but it does not conform to any of the types of multiple neuritis, and is open to some doubt from the results of the autopsy, since numerous foci of

[1] Electrization localisée.

[1] Duménil: Gaz. Heb., 1864, p. 203, and Gaz. Heb., 1866, No. 4.

[2] Ce que j'ai observé me donne la conviction intime que bien des paralysies de cause obscure ont leur point de départ dans les véritables névrites spontannées. Gaz. Heb., 1866, No. 4.

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disease were found in the spinal cord. We, therefore, pass it by.

Singular as it may seem, an interval of ten years elapsed before another case of similar nature, accompanied by a record of *post-mortem* examination, appeared. Then Eichhorst, of Berlin, reported the following interesting history:

Observation II.—A female, aged sixty-six, after suffering daily for two weeks from a chill, fever, and sweat, attended by malaise, anorexia, and constipation, noticed an œdematous swelling of both feet and legs, and complained of pain in the abdomen. A week later, on admission to the hospital, these symptoms continued. The urinary examination was negative. Three days after admission she suddenly felt a severe boring pain in the left leg, shooting into the toes, and at the same time a profuse sweat broke out over the calf and back of the foot. A few hours later a total paralysis was found in the muscles supplied by the peroneal nerve, with a marked anæsthesia. The electric reaction, at first preserved, was found two days later to be gone. After six days, during which she had no further chills, a paralysis of the anterior tibial nerve developed, and soon after of the posterior tibial nerve also. One week later entire paraplegia of the legs, with anæsthesia, severe pains, continual sweating, increasing œdema, and loss of the tendon reflexes had ensued. There followed a paralysis of the left, and soon after of the right, radial nerve. Moderate fever continued, and albuminuria appeared. Three weeks after her admission sudden blindness developed, the ophthalmoscopic appearances being at the time normal; the patient then lay in bed with eyes closed, unable to move a limb. The extremities perspired constantly, and were tender, any pressure on nerve-trunks being very painful. In the face there was no trouble, and the senses were normal except that of sight. No trouble in swallowing. Nothing abnormal about the viscera during the entire disease. No irregularity of pulse or respiration. Death occurred on the forty-fourth day of the disease.

Autopsy: Spinal cord absolutely normal. The nerve-trunks in the bicipital grooves appeared intensely red to the eye, the perineurium being discolored and the endoneurium blood-red. The same appearance was noticed in the large nerve-trunks of the arm in their course, as well as in the left tibial nerve. The microscopic examination showed a remarkable distention and tortuosity of the bloodvessels of the perineurium; the vessel-walls were thickened, their nuclei increased. In the vicinity of the vessels a large number of lymphoid cells were found, which everywhere followed the vessels and infiltrated the connective tissue. There were also numerous fatty cells. The connective-tissue fibrillæ of the perineurium were thickened, shining, and swollen; their nuclei were increased and partly infiltrated with fat granules. Similar changes were seen in the endoneurium, viz., numerous extravasations of blood, which separated the nerve-fibres and compressed them. The nerve-fibres showed marked degeneration, especially those lying next the endoneurium, consisting of disintegration of the myelin sheath, and a distention and spindle-shaped swelling of the individual nerve-fibres. The nuclei of the sheath of Schwann were not increased in number, but the protoplasm about them was coarsely granular and opaque. The cells of the endoneurium were everywhere wanting, being replaced by fatty granular cells, even between the uninjured fibres.[1]

This is the first case to be found in which the microscopic appearances are described with sufficient detail to be satisfactory. It is to be noticed that here the lesion was an acute inflammation, and was, apparently, a diffuse one, both interstitial tissue and nerve-fibrils being involved in the process. That it was primarily an interstitial inflammation, and that the affection of the nerve-fibrils was secondary, due to pressure of the products of exudation, is clearly seen in the fact that those fibres were more seriously affected which lay near vessels, while the deeper fibres in large bundles were not at all degenerated. The appearance of the fibres was such as occurs in any degeneration from pressure. There is no reason, therefore, to believe that the process began diffusely.

As to the symptoms in this case, it is to be remarked that they were ushered in by an acute febrile movement with chills, and that severe pain was an early and prominent symptom; also, that œdema and sweating were present; and that the optic nerves were involved.

The clinical picture in the following case of Joffroy, published three years later, was somewhat different, as was also the pathological condition.

Observation III.—A washerwomen, aged thirty-three, in the last stage of phthisis, was admitted to the hospital on March 5th. In February she had noticed a rapidly increasing weakness in her legs, and at the time of admission she could not walk or raise her feet from the bed. She could flex the knees but not extend them. There was no contracture, and the muscles were relaxed and flabby. Sensations to pain, temperature, and pressure impressions, were normal, but the muscular sense was lost, and reflexes were diminished. She showed such a degree of mental weakness that tactile sense could not be tested. She had no shooting pains, no loss of control over bladder and rectum, no bedsores. Two weeks later the arms became involved in the paralysis, and atrophy, incoördination, and loss of muscular sense, with fibrillary motions, developed within a few days. There was great diminution of faradic excitability in all the paralyzed muscles. At the end of ten days the arms were entirely powerless, but retained their sensibility. On April 7th she died.

Autopsy: A chronic meningitis of the brain explained the mental symptoms. The spinal cord was normal. The nerves appeared normal; but microscopic examination showed very marked degeneration in all the nerve-trunks, but especially in the sciatic, radial, and ulnar nerves. There was a segmentation of the myelin sheath, which at places was reduced to a finely granular mass. Many sheaths of Schwann were filled with this mass, others were empty. The nuclei of the sheaths of Schwann were increased in number; all the spinal nerve-roots were normal. The changes in the nerves were followed down into the fine terminal branches in the thenar muscles. The muscles were atrophied and showed fatty degeneration.[2]

Here, in contrast with the preceding case, it is to be noted that the lesion was not attended by congestion of the nerves, or by any exudation of lymphoid cells, or by

[1] Eichhorst: Virchow's Archiv, Bd. 69, S. 265, 1876.

[2] A. Joffroy: Arch. de Phys. norm. et Path., 1879, pp. 172–198.

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marked interstitial changes. The affection was a true parenchymatous inflammation, with degeneration of the myelin sheath and axis-cylinder. As a result, the macroscopic appearance of the nerves was not such as to attract attention, and it required a microscopic examination to demonstrate the changes present. Joffroy, who reports this case as one of general spontaneous neuritis, finds the lesion identical with that observed in cases of localized neuritis occurring from cold, from lead palsy, or as a sequel of the infectious diseases. In regard to the symptoms, also, the case contrasts strongly with the preceding one. The patient had phthisis. The disease advanced more slowly. Pain was absent, and the sensory symptoms were by no means prominent, the muscular sense being the only one affected.

In 1880, the following cases were observed by Leyden in the Charité Hospital of Berlin, in both of which changes were found in the peripheral nerves. They are cited because they not only enlarge our clinical picture, but confirm the pathological conditions already described.

Observation IV.—A sailor, aged twenty-five, was suddenly seized with severe tearing pains in all four extremities, especially near elbows and knees, which were swollen, white, indurated, and very tender. The pains shot down the limbs, and were attended by formication, and by diminished sensation in fingers and toes. High fever accompanied the onset. In a few days, as the fever subsided, a paretic condition with muscular atrophy was noticed in the forearms, and to a less extent in legs and feet. A gradual improvement took place in the course of a few months in the lower extremities, but the paralysis and atrophy in the arms increased in degree, and the appearance of the hands resembled that seen in lead palsy. There was a reaction of degeneration in the muscles paralyzed. A year after the onset he died of chronic nephritis.

Autopsy: A sclerotic atrophy of both radial nerves was found. The nerve-sheath was thickened. The muscles were considerably atrophied. The anterior spinal nerve-roots, as well as the cells in the anterior horns, and the entire spinal cord, were normal. In the nerves of the lower extremities no changes were visible.[1]

Observation V.—The second case was that of a merchant, aged thirty-one, who noticed about Christmas, 1878, a feeling of formication in the toes and sole, of first the left, and then the right foot. This continued more or less severe, without any motor disturbance, until July 10th, when he found his legs heavy, and in two days this had so increased that he could not walk. At the same time a constant formication in the soles of the feet was felt. Within a few days similar symptoms appeared in the arms and hands. On admission to the hospital on July 17th, he complained of weakness of the legs and loss of sensation in the hands, also burning pain in the left hand and inner side of the left knee. The motion of the legs was powerless and uncertain, and there was paresis of the extensors of the hands and fingers. Sensation was much impaired in the periphery of the extremities; the tendon reflexes were abolished, the muscles flabby. The electrical examination showed a loss of faradic contractility, and a great diminution of galvanic contractility in the affected muscles. The liver was tender, and there was a slight jaundice; pulse 70; no fever. The paralysis increased slowly in extent and severity, and was accompanied by paræsthesia, pains, and diminished sensibility. The muscles atrophied, and showed the reaction of degeneration. After six weeks slight fever began, with rapid pulse and dyspnœa. The pains affected the upper part of the thorax, and the spinal column became sensitive as low as the eighth dorsal vertebra. During the last days small rapid pulse, severe dyspnœa, purely costal respiration, delirium, somnolence, and exhaustion were noticed, and on September 3d he died.

Autopsy: The spinal cord was normal, the gray and white substance intact, the large ganglion-cells in normal form and number, though a few seemed to present a slightly swollen, glassy appearance which Leyden considered the first indications of trophic disturbance. The nerve-trunks, especially the radials and peronei, presented the appearance of a high degree of fatty degeneration and atrophy. The myelin sheath was either wholly wanting or greatly divided and split up, and in a state of fatty degeneration; the axis-cylinder seemed varicose from deposits of fat in it. A marked infiltration of lymphoid cells, especially between the endoneurium and nerve-fibres, was noticed, more marked along the course of the small arterioles. These changes were present in a greater degree in the peripheral branches of the nerves, and seemed less in the nerves near the cord.[1]

It will be noticed that here the lesion corresponded quite closely to that in the case of Eichhorst.

Impressed by the striking features of these two cases, and by their similarity, both in clinical symptoms and pathological changes, to the cases of Duménil, Joffroy, and Eichhorst already cited, Leyden undertook a review of atrophic paralysis.[2] He showed the confusion which had come from blindly referring all such cases to a single lesion in the spinal cord. He proved that previous authors had erroneously grouped together several diseases distinct from one another, both in their course and in their pathology. One of these is poliomyelitis anterior, acute and chronic, occurring in children and adults; a disease of the anterior gray horns, with local foci of inflammatory degeneration; a disease characterized by motor and trophic symptoms of peculiar distribution and typical course. A second of these is progressive muscular atrophy, with its corresponding bulbar affection, glosso-labio-laryngeal paralysis; a disease of the anterior gray horns and of the motor cranial nerve-nuclei, of a chronic degenerative, non-inflammatory kind; a disease characterized by trophic and motor symptoms of different distribution, nature, and progress from the first disease considered. A third disease is pseudo-hypertrophic paralysis, in which a fatty deposit in the muscle conceals the real atrophy in progress; a disease of childhood, but not due to any spinal affection; a disease of the muscular tissue itself. And lastly, he drew the picture of multiple neuritis, a disease due to degenerative processes in the nerves, independent of spinal lesion; a disease characterized by atrophic paral-

[1] Leyden: Charité Annalen, 1880.

[1] Leyden: Zeitsch. f. klin. Med., 1880.

[2] Leyden: Zeitschrift für klin. Med., I. Ueber Poliomyelitis und Neuritis.

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ysis, associated with marked sensory symptoms, and with tenderness of the nerve, by a typical course, and, usually, by a favorable termination. By this article Leyden established the status of multiple neuritis as a distinct disease. Its symptoms were analyzed. Its lesion was described. The pathological stage in the progress of its discovery was complete.

When the characteristic features of a new disease have once been clearly pointed out, it is remarkable to observe how rapidly cases of it begin to be recognized. In the two or three years which followed the appearance of Leyden's article, numerous cases of multiple neuritis were reported in the journals. And many physicians, reviewing their records, recognized, in cases previously obscure or imperfectly diagnosticated, typical pictures of the new disease. It may be well to consider a few of these cases in order to complete our clinical knowledge of the affection.

Observation VI.—A female, aged thirty, of intemperate habits, but otherwise in good health, after suffering from formication, coldness, and pains in her feet and legs for some months, noticed an œdema of both legs. This increased rapidly after a few days, and the swollen limbs became painful to touch or pressure, and were the seat of severe lancinating pains, which were worse at night. Within a month the same symptoms appeared in the arms and hands, and a marked hyperæsthesia developed in all the extremities, as well as a rapidly progressing paralysis; so that, on admission to the hospital, six weeks after the appearance of the œdema, it was impossible for her to lift her limbs from the bed, or to extend her hands and fingers. The movements in the distal portions of all the extremities were much more impaired than those near the trunk, and in the paralyzed extensor muscles the faradic excitability was almost abolished. Heart and kidneys normal. She had some fever, and was delirious at night. The symptoms increased rapidly; the paralysis became total; respiration became difficult; the heart rapid, and a week after admission to the hospital she died.

Autopsy: Tubercles in the lungs. Brain and cord were normal. Nerve-roots were normal. In the nerves of the extremities marked degeneration was found, especially in the radial and tibial nerves. By the side of a small number of empty sheaths were found fibres, whose myelin was segmented and in drops, separated by empty spaces. The axis-cylinders were indistinct. There was no increase in the nuclei of the sheath of Schwann.

In discussing the case Dr. Lancereaux made the diagnosis of alcoholic paralysis, assigning the lesion to the nerves, and differentiating it from a myelitis or a meningitis. In so doing he criticised the views of Wilks and Lockhardt Clarke, who still considered alcoholic paralysis as a central disease. He cited another case, very similar, of a female aged thirty-three, in which the symptoms were pains, hyperæsthesia, tenderness, paralysis, with atrophy in the extremities, but in which œdema was not so marked and came on quite late in the course of the case. The same lesions were found. To these he added two cases in which the patients manifested the same symptoms, but had never drank. They were both, however, sellers of varnish, and lived day and night in an atmosphere permeated by alcoholic vapor, from which he concludes that chronic alcoholic poisoning can occur by absorption through the lungs—a valuable observation, but hitherto not confirmed.[1]

The following case was reported by Grainger Stewart, together with two other cases which resulted in recovery.

Observation VII.—A male, aged thirty-one, noticed during August, 1880, a weakness of the legs, and during the following month a pain of a prickling character in the legs and feet. These increased in intensity, and in October a similar feeling came on in the fingers and hands, accompanied by loss of power and stiffness. When seen, in November, he had tingling pain in both legs from the knee to the back of the foot, with numbness and feeling of cold in the toes and plantar surfaces, so also in the hands, to a less extent. No girdle pain or formication. Sensibility to touch was diminished in the legs and hands. Transmission of impressions was delayed. Sensibility to heat, tickling, and pain were all diminished, as was also the muscular sense in the feet. There was no nystagmus, although he complained of things dancing before his eyes. Sight was normal. There was no incontinence of urine or feces. The skin reflexes were absent in the soles, but normal in the abdomen and groins. The knee-jerk was absent. Voluntary motion was greatly impaired in legs and arms, and attempts to use the muscles caused pain. Electric irritability of the muscles and sensibility of the skin were much diminished. There were no vasomotor or trophic changes. His mental condition became changed during his stay, his memory was impaired, and he seemed drowsy. A month after his first examination he died of pneumonia.

Autopsy by Dr. D. J. Hamilton: The median, ulnar, and tibial nerves showed great changes. With a low power of the microscope the bundles of fibres appeared to be affected by fatty degeneration. With a high power it was found that the axis-cylinders were swollen so as to form a number of fusiform bodies in the course of the nerve-tubes. These at parts were divided into a number of round homogeneous colloid bodies. When set free these bodies underwent a fatty degeneration, forming compound granular corpuscles. In some fibres the axis-cylinder was totally destroyed, nothing but a quantity of fibrous tissue remaining. The cords of the brachial plexus and the sciatic nerves were normal. Slight evidence of secondary sclerosis in the spinal cord was found in the columns of Goll and in the direct cerebellar columns. Its origin could not be explained.[2]

It must not be supposed, from the fact that all the cases so far cited were fatal, that death is always the result in multiple neuritis. This is very far from the truth, and probably, if the mortality had been greater, the pathology of the disease would not so long have eluded search. The fatal cases have been brought together in order that the pathological appearances observed might be noted and compared, and might become somewhat familiar by repetition. It is time to enter upon the more careful study of their pathology, and so, for a time, let us leave the clinical features of the disease.

It may not be out of place, before proceeding to discuss the changes occurring in inflammations of the nerves, to review the normal anatomy of a nerve.

[1] E. Lancereaux: De la Paralysie alcoolique. Gaz. Heb. de Méd., 1881, p. 120.

[2] Grainger Stewart: Edinburgh Medical Journal, April, 1881.

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The Histology of a Nerve-Fibre.—When a nerve-trunk is dissected, the connective-tissue sheath or perineurium enclosing its fibres torn away, and the individual fibres set free by teasing from the finer connective-tissue strands or endoneurium which bind them together, it is possible to distinguish certain parts, by means of appropriate methods of staining.

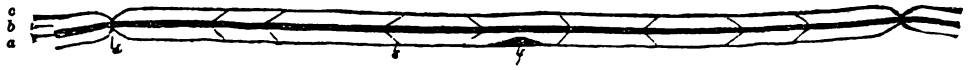
There is *first* the axis-cylinder, Fig. 1 (*a*). This is made up of a number of primitive fibrils arranged longitudinally and continuous throughout the length of the nerve. The fibrils are cemented together by a substance which appears finely granular. Each cylinder is supposed to represent a prolongation of a single nerve-cell; but whether the individual fibrils of which it is made up come from the same cell or from different cells, or from the fibrillary network in the central organ surrounding the cell, is a matter of hypothesis.[1]

There is, *secondly*, the myelin sheath surrounding the axis-cylinder, Fig. 1 (*b*). This is not a continuous tube, but consists of a series of little tubes, or interannular segments placed end to end. The point of junction of two adjacent segments is indicated by a constriction in the contour of the nerve-fibre, and if the myelin be stained with osmic acid it is seen to be deficient at these constrictions. If, by any means, the nerve-fibre be broken, the myelin in any segment will run out and collect in drops, showing that it is a semi-fluid substance, of fatty nature.[2]

There is, *thirdly*, a connective-tissue membrane surrounding the myelin sheath, the sheath of Schwann, Fig. 1 (*c*). This, like the last, is made up of segments cemented to one another at the point of constriction of the fibre. This constriction is known as the ring or node of Ranvier, Fig. 1 (*d*), and at its situation the sheath of Schwann is the only covering of the axis-cylinder. On the inner side of this sheath, and halfway between two nodes, is found a nucleus (Fig. 1, *f*). The sheath and nodes are made evident by staining with nitrate of silver, while the nucleus is seen best by staining with carmine or acid fuchsin. The mutual relation of the sheath of Schwann and the myelin sheath, are best understood by the study of their development, segment by segment. Ranvier[1] likens the production of any one segment of these sheaths to the production of a fat cell from a nucleated cell. Every nucleated cell is surrounded by a layer of protoplasm. As the fat forms, it collects within the layer of protoplasm in the vicinity of the nucleus, in the form of drops which finally unite into a mass. This mass is surrounded by a very thin layer of protoplasm and by the cell-membrane. On one side of it is seen the nucleus flattened out against the inner side of the membrane in the layer of protoplasm. Now, if each segment of the sheaths corresponds to the fat cell, and the myelin to the fat, the structure of the segment is clear. The membrane of the fat cell is represented by the sheath of Schwann. At the point of constriction of the nerve-fibre this membrane is cemented to that of the adjoining segment. Beneath the membrane, and flattened against its side, is the nucleus of the segment, lying in a layer of protoplasm in the middle of the segment. This layer of protoplasm forms a lining everywhere to the sheath of Schwann. With that sheath it is reflected around the axis-cylinder. Within the lining, in a state of semi-fluidity, is contained the myelin, which will run out if the limiting membrane is broken. By appropriate staining fine lines can be seen passing between the outer and inner layers of protoplasm, through the myelin sheath, the so-called incisions of Schmitt, Fig. 1 (*e*). These have been considered little trabeculæ of protoplasm within the segment in the midst of which the myelin lies. Recent staining methods seem to indicate that they belong to the sheath of Schwann and are connective tissue. The layer of protoplasm lying against the axis-cylinder, is the layer which was formerly described as the sheath of Mauthner. Some authorities consider that a layer of connective tissue similar to the sheath of Schwann surrounds the axis-cylinder, but this is still uncertain. Thus the nerve-fibre consists of a central conducting strand, surrounded and insulated by a series of tube-like segments of fluid contained within a membrane, which are joined to one another, forming a double protecting sheath.

Individual fibres are associated in bundles held together by fine connective-tissue cells whose nuclei

FIG. 1.



A Normal Nerve-fibre. *a*, Axis-cylinder; *b*, medullary sheath; *c*, sheath of Schwann; *d*, node of Ranvier; *e*, incisure of Schmitt; *f*, nucleus of the sheath of Schwann.

[1] Whatever their origin, it is certain that they pass together in the axis-cylinder to the periphery, and that there the axis-cylinder as such terminates, while the individual fibrils branch out in various directions, and, joining with other fibrils from other cylinders, form a fine plexus within the organ to which the nerve as a whole has gone. It has been thought possible to trace individual fibrils of the plexus into individual epithelial cells. Such is their termination in various internal organs, and in the skin. This is not, however, the only manner of termination of the axis-cylinder, for individual nerves can be traced directly to terminal organs, such as the terminal plates upon the muscle, and the terminal bulbs and corpuscles in the skin; in which cases no division or branching of the fibrillary constituents of the axis-cylinder has been discovered. The termination in each of the organs of special sense is still different. The axis-cylinder can best be seen by the acid fuchsin stain.

[2] The myelin sheath is not a necessary constituent of all nerve-fibres, for the majority of the nerves of the sympathetic system are devoid of such sheaths. Nor does the myelin sheath of the nerves of the cerebro-spinal system extend from end to end of the axis-cylinder. For the axis-cylinder first receives its sheath at some little distance from the cell from which it issues, and at its termination, where it breaks up into branching fibrils, the myelin envelope ceases. Throughout the course of the nerve, however, the myelin sheath is present in the cerebro-spinal nerves, forming a protecting envelope, and probably acting as an insulating substance as well.

[1] Ranvier: Leçons sur l'Histologie du Système Nerveux, tome i. p. 115.

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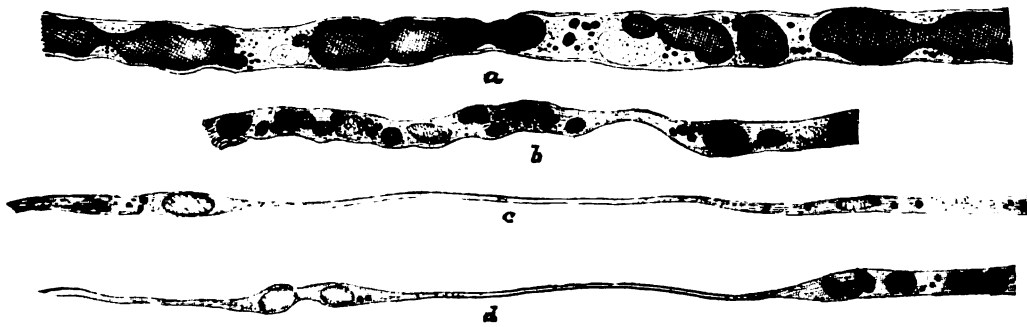
can be seen in a carmine or fuchsin stained preparation, lying always adjacent to, but outside of, the sheath of Schwann.[1] This has been called the endoneurium, while the connective-tissue sheath surrounding the entire bundle is named the perineurium. Capillary vessels with free anastomoses run within the nerve, their walls lying adjacent to the individual fibres, and thus affording a perfect nutrition.[2] Lymph-spaces also have been demonstrated within the nerve sheath, but not among the fibres.[3] That the interfibrillary spaces of the endoneurium, however, open into these perifascicular lymph-spaces is probable, from the fact that they do so in other organs. While it is evident that the nutrition of the axis-cylinder is derived from the circulatory fluids, it is probable that it is only at the nodes of Ranvier that the absorption takes place, since elsewhere the myelin sheath interferes with osmosis. Thus, if the nerve be put in nitrate of silver, it is only opposite the nodes that the axis-cylinder becomes stained.

The Pathology of Multiple Neuritis.—In studying the pathological processes which occur in multiple neuritis, it is necessary to keep these various elements of the normal nerve in mind, since each element is subject to changes. The exact character of these changes is best understood by observing the results of nerve-correspond quite exactly to those produced by experimental degeneration.

In considering the pathology of degenerative neuritis we enter at once upon a mass of controversial statements. It would seem to be a simple matter to establish, by observations upon nerves which had been experimentally compressed or severed, the changes which ensue in nerve injuries. But, as a matter of fact, there is, perhaps, no field of experimental pathological inquiry in which the results have differed more widely. In the first place, it is probable that the rapidity and even the character of the changes differ in different animals. Secondly, various methods of investigation, of hardening, dissecting, and staining the nerves, seem to have resulted in the production of different appearances. And, lastly, it is by no means certain that a uniform pathological process goes on after experimental lesions.

After a lesion of a nerve-trunk, a process of degeneration sets in at the point of injury, and involves a small portion of the central end and the entire peripheral part of the nerve, from the seat of injury onward. This process may be more or less complete, and may, or may not, be followed by a second process of regeneration in the diseased nerve. It is necessary to distinguish between the degenerative and regenerative processes; and, inasmuch as it is affirmed that they may proceed

FIG. 2.



The Process of Degeneration (after Ranvier). *a*, Segmentation of myelin and axis-cylinder, with increase of protoplasm; *b*, disintegration of myelin into drops, increase of nuclei, partial absorption of débris; *c*, complete absorption of the disintegrated mass, leaving the Schwann sheath empty, or containing only débris and nuclei; *d*, the same, nuclei alone remaining.

degeneration artificially produced in animals. And a study of this will not be out of place here, for, as we shall see, the changes occurring in multiple neuritis simultaneously in various parts of the same fibre,[1] it is not strange that the confounding of the two should have increased the confusion in the statements.

In early times it seems to have been a question whether the destruction of a nerve was ever recovered from, and while the majority of authorities rightly contended that this was possible, there were those who denied it vehemently. Steinneck,[2] in 1838, seems to have determined this fully in the affirmative, using both the physiological and anatomical data at his disposal to good advantage. The exact processes of degeneration were first carefully studied by Nasse[3] and Waller,[4] and their results having attracted attention to the phenomena in question, a host of investigators have followed their lead. The most careful examinations of the entire series

[1] These connective-tissue cells which lie between individual fibres, have been recently the subject of study by Adamkiewicz (Adamkiewicz: Ueber Rückenmarkschwindsucht. Sitzungsbericht der Wiener Acad., Bd. 91, Abth. II.), and Rosenheim (Rosenheim: Arch. für Psych., xvii. S. 820). The former regarded them as nerve-corpuscles, but the latter has proven that they are true connective-tissue cells. They are best seen in specimens stained with a double staining of anilin gentian-violet, and methyl-blue, though they can be seen distinctly in fuchsin stained preparations, as has recently been demonstrated by Dr. Van Giesen, of the Laboratory of the College of Physicians and Surgeons. They appear on nerves after the age of five, and increase in number as the individual grows older, so that in elderly persons they are very numerous. They are round or spindle-shaped, and frequently appear to have little thorn-like processes. In addition to these connective-tissue cells there are fine fibrils of connective tissue, and bands of tissue lying between the bundles of nerve fibres.

[2] Ranvier, l. c., p. 253.

[3] Ranvier, l. c., p. 258.

[1] E. Neumann: Ueber De- und Regeneration der Nerven, Arch. f. Mikro. Anat., xviii.

[2] Schmidt's Jahrbuch., Bd. 26, S. 102, 1840.

[3] Müller's Archiv, 1839.

[4] Comptes rendus, 1852, vol. 34, p. 675.

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of changes which go on in degeneration and regeneration have been made by Ranvier,[1] Phillipeau and Vulpian,[2] and Dejerine,[3] in France; by E. Neumann,[4] S. Mayer,[5] and Wolberg,[6] in Germany; by Hanken,[7] in Holland; by Schiff[8] and Tizzoni,[9] in Italy, and by Weir Mitchell,[10] in America.

The majority of writers upon nervous diseases, and upon general pathology, seem to have followed Ranvier closely, without any mention of the fact that other authorities differ from his conclusions. It will be necessary here to present the various views which are held.

The Process of Degeneration.— When a nerve is compressed by a ligature, or forceps without sufficient force to rupture the sheath of Schwann, the myelin is driven away from the point of pressure in both directions, and the axis-cylinder is disintegrated and mingled with it. It might be supposed that the nodes of Ranvier would prevent such a driving back of the myelin, but they seem to offer but feeble resistance, so that the entire fibre on either side of the compressed spot is bulged out for some little distance, the sheath of Schwann between the distended portions being left empty, or containing only a little granular débris. In a short time changes of a degenerative character are observed on both sides of the point of compression. Those on the central side are limited to the immediate neighborhood of the injured spot, and, according to Ranvier, do not affect the nerve for a distance greater than a centimetre from the point of compression.[1]

FIG. 3.

The Process of Degeneration and Regeneration going on in Normal Nerves (after Mayer). *a*, Segmentation of the myelin; *b*, contents of sheath of Schwann reduced to granular mass; *c*, sheath of Schwann, containing only débris and nuclei; *d*, granular mass in the sheath in process of regeneration; *e*, regeneration of a single segment after degeneration.

[1] Leçons sur l'Histologie du Système Nerveux.
[2] Gaz. Méd. de Paris, 1859; Comptes rendus à la Soc. de Biol.
[3] Arch. de Physiol., 1875, p. 567.
[4] Arch. f. Pathol. Anat., xviii. 302, 1880.
[5] Zeitsch. f. Heilkunde, ii., 1881.
[6] Deut. Zeitsch. f. Chirurgie, xviii. u. xix., 1883
[7] Internat. Monatsch. f. Anat. und Histologie, Bd. iii., 1886; Fortschritte de Medicin, Dec. 21, 1886,
[8] Comptes rendus, 1854, vol. xxxviii. p. 448; and Zeitsch. f. Wissen. Zool., 1856, vii. p. 145.
[9] Centralbl. f. Med. Wissen., 1878, Nr. 13.
[10] Injuries of Nerves, 1872.

[1] Some recent investigations of Friedländer and Krause throw doubt upon this statement. (Fortschritte der Medicin, Dec. 1886, They have discovered a considerable degree of atrophy in the nerve-trunks in the stumps of amputated extremities, and they traced this atrophy upward through the nerves, and into the pos-

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On the peripheral side of the point of pressure the degeneration is extensive, involving the entire nerve down to its finest terminations. The process is held by some to be a gradually advancing one along the fibre from the point of pressure outward, while others believe that it begins at once in the entire length of the nerve. The first change noticed is a breaking up of the myelin sheath into segments, and then into smaller masses and drops (Fig. 2, *a*, *b*), which finally undergo further disintegration, either by a fatty or albuminoid degeneration, or by a process of saponification, until a finely granular mass alone remains. Tizzoni states that this process is partly due to the activity of migratory white blood-globules, a view which Ranvier supports, and which Neumann and Mayer deny. If, as seems probable, the connective-tissue cells of Rosenheim take an active part in all processes of nerve inflammation, it is possible that these are the bodies which Tizzoni mistook for leucocytes. Ranvier holds that the segmentation of the myelin is due to the increase of the protoplasm about the nucleus of the segment, and that it is this protoplasm which replaces the myelin. Neumann holds that the granular mass resulting from the disintegration is not protoplasmic, but is a débris capable of acting as the basis for processes of regeneration after undergoing a chemical change. All authorities admit that the granular mass may be gradually absorbed, leaving the sheath of Schwann collapsed and empty, or containing only granules of débris (Fig. 2, *c*).

As the myelin undergoes these changes the axis-cylinder usually becomes involved. Some authors, it is true, believe that it remains intact, and that, although deprived of its function, it is capable of resuming that function at any time when regeneration of the myelin sheath has taken place. Such authorities as Erb, Charcot, Weir Mitchell, and Wolberg have given their approval of this view. Ranvier believes that the protoplasm of the nucleus attacks and destroys the axis-cylinder as well as the myelin. Neumann holds that it is split up into segments like the myelin, becomes mingled with it, and undergoes the same process of chemical change, or absorption; and Mayer agrees with this view. (Fig. 3, *a*, *b*, *c*.)

The sheath of Schwann also takes part in the process of degeneration. When that process has fairly begun numerous nuclei are observed lining this sheath in each interannular segment. They may have come by a process of segmentation of the original nucleus of the segment, as Ranvier holds. But Neumann and Mayer have shown that they appear as early at the extremities of the segment as they do in the vicinity of the nucleus, and they therefore conclude that they are a free formation originating in the granular or protoplasmic mass. Tizzoni thinks them emigrated corpuscles. The most recent view of all is that of Rosenheim, that they come from the connective-tissue cells along the sheath which divide and multiply, and show powers of emigration as soon as the process of degeneration begins. When the granular mass is absorbed these nuclei remain scattered along the sheath of Schwann, and it has been suggested that, when in an empty sheath a new axis-cylinder appears, it owes its existence to these nuclei, which arrange themselves in a line, and develop into the new fibre (Wolberg). If no regeneration occurs they disappear gradually, and then the only relic of the former nerve-fibre is the empty, collapsed sheath of Schwann, which remains as a connective-tissue strand.

The increase of nuclei and connective-tissue fibrils in the endoneurium and perineurium which accompanies the process of degeneration, aids in the transformation of the nerve into a band of connective tissue.

The degeneration which affects the nerve is continued to the terminal plates upon the muscle, and these are changed into a mass of granules and finally absorbed, a connective-tissue plate being left.[1] Whether any changes occur in the sensory terminal organs, such as the tactile corpuscles or terminal bulbs, has never been ascertained. Those who believe that the individual axis-cylinder fibrils terminate in the epithelium of the skin may cite the trophic changes which often occur on the surface as evidence that this covering of the body shares in the nerve changes.

Authorities seem to agree that the same results follow a division of a nerve that are observed after its compression, with the difference that at the point of section the myelin runs out of the sheath of Schwann. The cut end of the nerve becomes swollen into a bulbous extremity by a growth of connective tissue.

Whether a true union of the divided ends ever occurs is still a matter of uncertainty. The majority of authorities, following Ranvier, affirm that while a primary coaptation of the ends by an exudate which is secondarily transformed into connective tissue, may occur and hold the ends in position, no true primary union of nerve-fibres is possible, and under all circumstances the degenerative process already described goes on to completion. Glück, however, claims to have observed an actual union of the two ends, with reëstablishment of function, at a time too early to have admitted the occurrences of degeneration and regeneration; and Wolberg, approaching the subject from the surgical side, and considering the results of nerve-suture, inclines to the same view.

In the midst of such contrary statements, what conclusion can be reached as to the actual facts? It seems evident that but one conclusion is certain, viz., that under different circumstances different processes occur. The various observers are equally trustworthy. It is impossible to choose one set of conclusions rather than another, or to rely wholly upon one series of experiments, however capable the observer may be, for they all rest upon repeated observations. It is undoubtedly

terior nerve-roots exclusively. They conclude, therefore, that the fibres affected are entirely sensory fibres. The axis-cylinder is only slightly affected by the atrophy, but the myelin sheath is wholly destroyed. Inasmuch as the degree of atrophy in a nerve-trunk was about the same, whether the amputation had been made near the body or near the end of the limb, they conclude that only certain of the sensory fibres degenerate upward. And as the tactile corpuscles and terminal bulbs are found only in the most distal parts of the extremities, it is suggested that only those sensory fibres degenerate which arise from these so-called tactile bodies. If this is proven to be true by further observation, the tactile bodies will assume the *rôle* of trophic centres for the sensory nerves. And in this case anything which interrupts the connection between the tactile bodies and the posterior spinal ganglion will produce a centripetal degeneration in the nerve. Hence in neuritis from section or pressure, as well as in multiple neuritis, such secondary degeneration is to be expected and should be looked for.

[1] Gessler: Die Motorische Endplatte und ihre Bedeutung für die Periphere-Lahmung. Leipzig, 1885.

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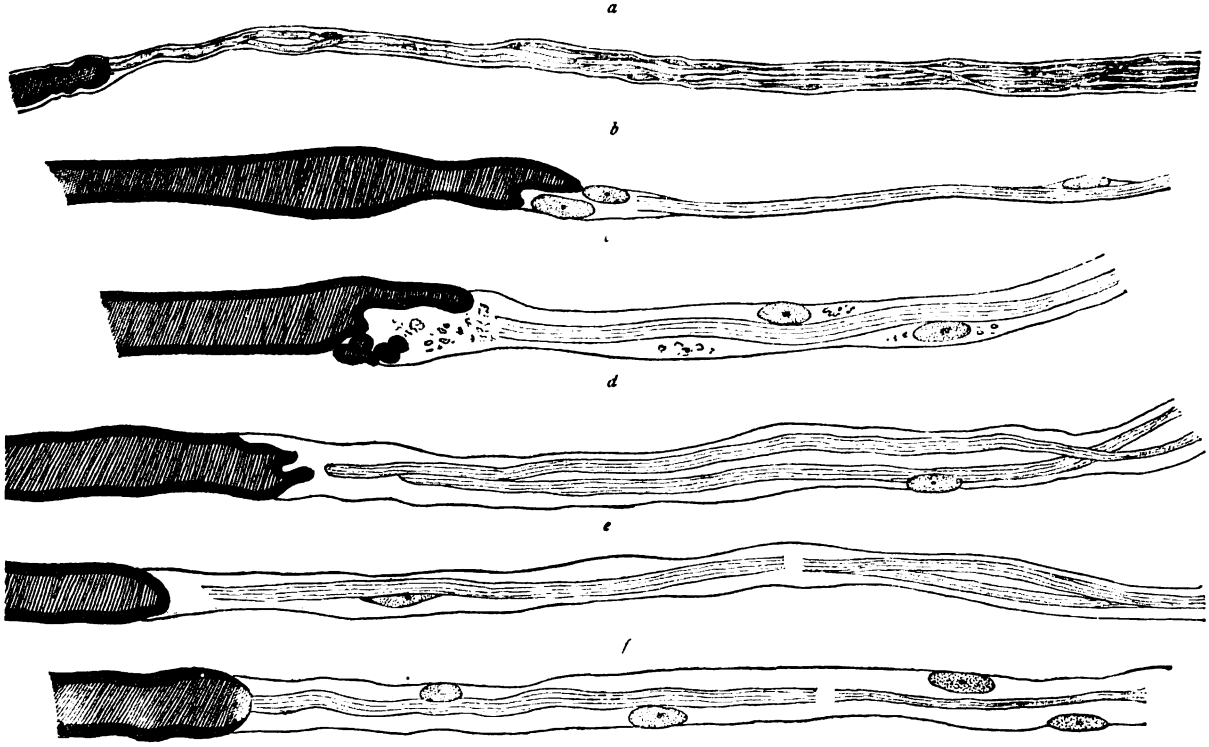
true that in some cases the degenerative process, so graphically pictured by Ranvier, from the beginning segmentation of the myelin down to the final result in the connective-tissue strand, the relic of the empty sheath of Schwann, goes on; while, in other cases of a less serious nature, the destruction is less complete, and there remains a fibre consisting of a sheath of Schwann, containing a granular mass which may be either an axis-cylinder, or a mass capable of developing into an axis-cylinder under favorable circumstances. If this is the case, we can affirm that brilliant surgical successes, with rapid restoration of nerve function after suture, are possible when the partial degeneration is present, but are impossible when the total destruction of the nerve-fibre has occurred. And statistics show that there is a certain percentage of operations which fail of any result, though repeated on the same nerve.

widely divergent views are held. Ranvier[1] and his followers claim that the new nerve is wholly a product of the central end of the injured nerve, growing out from it and making its way along the track of the peripheral end, which takes no active part in the process. Neumann and Mayer, on the contrary, believe that the regeneration goes on in the peripheral end of the cut nerve, segment by segment being formed successively, beginning at the point of injury and proceeding outward, the entire nerve being built up by the union of each distal segment, with the one lying centrally to it, until this process has reached the end. These various views demand a more exact statement. (Fig. 4.)

Ranvier describes several ways in which the new fibres issue from the central end. He has seen the central end of an individual nerve-fibre become hypertrophied, and from this swollen part a single new fibre start out al-

FIG. 4.



Process of Regeneration (after Neumann). *a*, Outgrowth of new nerve-fibre from central end, division into numerous axis-cylinders (Ranvier); *b*, development of axis-cylinder in peripheral end, the new fibre separated from the old by nuclei; *c*, ditto, with increase of protoplasm destined to become a new myelin sheath, overlapping of old myelin upon the new; *d*, two new fibres developing in a peripheral segment and ready to unite with the central end; *e*, two segments nearly developed, the central one in advance of the peripheral one; *f*, final union of the peripheral with the central segment, nuclei still remaining.

It is evident that future research should be directed, not so much to determine which of the processes described occurs, as to settle under what circumstances the one is produced rather than the other. And such research will have an eminently practical bearing, inasmuch as it will also demonstrate under what circumstances nerve-suture is likely to be attended by success.

The Process of Regeneration.—After the process of degeneration has gone on for some time in the nerve-fibre, it may cease, and the process of regeneration may begin. With regard to the method of this process two

ready medullated. He has also seen a single axis-cylinder grow out, and then divide into two, or even more, axis-cylinders, each of which develops into a complete medullated nerve. Or from the swollen central end of a single fibre several medullated and segmented fibres may originate, or one medullated fibre may be sent out with several non-medullated fibres coiled about it; or, lastly, a simple axis-cylinder branches out without a medullary sheath, divides into

[1] Loc. cit., ii. 42–67.

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two, and each of these in turn divides into two, and so on, until the sheath of Schwann, which had originally but one axis-cylinder within it, contains as many as eight or more (Fig. 4, *a*). These new fibres appear like a brush upon the end of the divided nerve, and wind about each other, forming a sort of plexus. By the aid of the cicatricial tissue, which usually joins the central end with the degenerated peripheral end, the bushy, branching fibres are directed outward toward the periphery. And when they reach the peripheral end of the cut nerve they insinuate themselves into the old remaining sheaths of Schwann, or between those sheaths, and grow on and outward till at last they reach the termination of the peripheral end, and the regeneration is complete. The terminal plates upon the muscles are renewed by a production of protoplasm in the plate. The description given by Neumann and Mayer is very different. It will be remembered that they describe, as a result of the process of degeneration, a band of fibres each consisting of a sheath of Schwann containing a granular mass. The process of regeneration begins in this mass. Within it they have seen a narrow band of fine homogeneous substance appear, which has the structure of a rudimentary axis-cylinder (Fig. 4, *b*). This does not fill the sheath of Schwann, and is often pressed aside by the nuclei which lie in that sheath (Fig. 4, *c*). It is not at first continuous with the end of the old axis-cylinder, remaining in the central part of the compressed or divided nerve, but as it increases in definite structure it approaches this old axis-cylinder, and finally unites with it. At the point of union a ring of Ranvier is formed. As this axis-cylinder develops, a substance is gradually formed around it, which is stained by osmic acid. This increases in thickness as the protoplasmic mass and the nuclei diminish, until it finally forms a new myelin sheath. The new myelin sheath is never continuous with the old one in the central end of the nerve, since it is separated from that by the ring of Ranvier; but often at first the older sheath seems to bulge out and encircle the new sheath, though this appearance is never permanent (Fig. 4, *c*). At the point of union of the new fibre with the old one, nuclei are often found; but these, like the others, gradually disappear (Fig. 4, *b* and *d*). Lastly, a new sheath of Schwann is produced around the new myelin sheath, and within the old sheath of Schwann. It presses aside the old sheath, together with such masses of protoplasm, drops of myelin, and nuclei as may remain, leaving them thus wholly outside of the new-made fibre, so that they coalesce with, and make part of, the endoneurium. The new sheath of Schwann has but one nucleus in each segment, and presents the nodes of Ranvier at regular intervals.

Neumann has shown that this process goes on in every individual segment of the nerve-sheath, so that in segment by segment, proceeding toward the periphery, the regenerative changes occur, and as each segmen approaches completion it joins itself to the preceding one (Fig. 4, *e*), until finally the entire nerve is reëstablished in its entire length. As the degenerative process begins in the segment nearest to the point of compression, so does the process of regeneration; and in some nerves the two processes may be seen going on together, the segments near the seat of injury being renewed while those at the periphery are still in a state of degeneration. The new fibres do not grow out from the old ones, as Ranvier describes in the regeneration of cut fibres, but protoplasm, with specific developmental properties, forms and differentiates the elements of the new fibre, and then unites it to the old one. The new fibres are, at first, somewhat smaller in calibre than the old ones (Fig. 4, *f*), but they gradually attain a normal size, and then the process may be said to be completed.

While Neumann would have the new fibres develop from the granular mass remaining in the old sheath of Schwann, Gunther, Hjelt, and Weir Mitchell suppose that they may originate from the nuclei of the old sheath, or even from connective-tissue cells and neurilemma nuclei remaining in the connective-tissue strand, and to this opinion Wolberg agrees. It is evident, therefore, that the process of regeneration is by no means accurately determined. But here again it is possible that conflicting statements may be explained. The method of regeneration may, perhaps, depend upon the exact stage of degeneration reached before it begins. If the product of degeneration is a simple band of connective tissue, it seems probable that the nerve-fibre will have to grow into it from a central origin, as in its original development in fœtal life, unless the connective-tissue cells recently discovered are neuroplastic cells, and have the power of producing new nerves, just as cells of periosteum may produce a new bone. If, however, when degeneration ceases, there remains a sheath of Schwann containing a granular protoplasmic mass, it is not at all improbable that that mass may be differentiated into an axis-cylinder and a medullary sheath, and joined to the old nerve-fibre, a process which has its analogy in the medullation of nerves in the embryonal state. If we admit, with Wolberg, that in some cases the axis-cylinder is not destroyed, the formation of new myelin is a rapid matter. That some such process as the one last described must occur in certain cases is certain, when the rapid recovery after minor injuries is considered, and when the results of nerve suture are taken into account; for in both these conditions the return of function occurs long before a new nerve-fibre, starting out from the old one, could have reached the periphery.

It is affirmed by Mayer that individual nerve-fibres in normal nerves are constantly undergoing these processes of degeneration and regeneration, either because the necessary renewal of worn-out tissue takes place in this manner, or because slight injuries from pressure or over-strain are sufficient to start up degeneration in single fibres.

The process of degeneration in the nerves, consequent upon the destruction of the ganglion cells from which they arise (the so-called Wallerian degeneration) differs in no respect from that ensuing upon compression or division, excepting that in the latter case only the distal part of the divided nerve undergoes the pathological change, while in the former it is the entire nerve that is affected. And in the changes described in multiple neuritis the same progress of events and the same varieties of termination are observed.

When the cases of multiple neuritis are examined from a pathological standpoint several varieties may be distinguished. In some of the cases, and these are the most numerous, there is a parenchymatous inflammation in the nerve-fibre only visible to the microscope.

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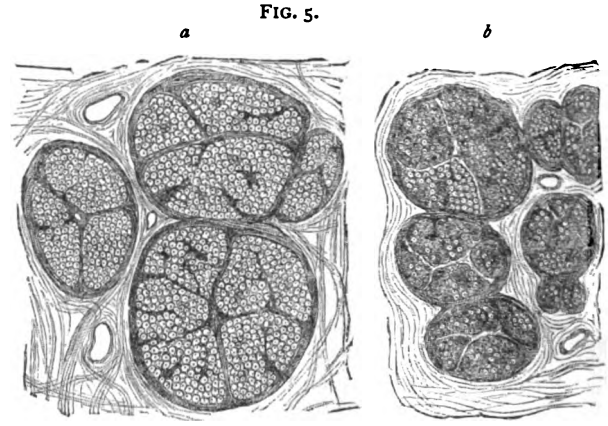
At the outset of this inflammation the myelin sheath appears slightly swollen, is less homogeneous, and, from a difference of refractive power, is less translucent. It then becomes split up into segments of different length and form, the segmentation occurring preferably at the incisures of Schmitt, while the incisures at other parts disappear. Between these segments of myelin, a finely granular protoplasm is seen, in which new nuclei are found. These nuclei probably are the cells of Rosenheim which have emigrated, although a few near the nucleus of the sheath of Schwann may be due to its division. In some fibres the axis-cylinder may still be preserved. In others it is broken at the same places as the myelin. At the next stage of the process the changes are more marked. The myelin is now reduced to a series of small globules surrounded everywhere by granular protoplasm, and in this protoplasm the nuclei are now very numerous. The axis-cylinder cannot be distinguished in the mass, as a rule, but occasionally a fine line is seen passing through the mass, which may be a remaining cylinder. The succeeding stage presents a different picture. While up to this time the size of the nerve-fibre has remained about normal and uniform, it is now seen to vary. At places the fibre is still wide and filled with a granular mass, at other places it is narrow, the mass having disappeared, leaving either a collapsed sheath or a sheath containing only nuclei here and there. In a few such narrow fibres there seems to be an axis-cylinder lying directly within the sheath of Schwann, and occasionally separated from it at various places by nuclei. But this appearance is rarely seen. As a rule, no trace of the axis-cylinder remains. As any single fibre may show at some places constrictions, at others dilatations, the variation in its calibre is the most striking feature of this stage. In the terminal stage the calibre is uniform again, but is now everywhere reduced. The sheath of Schwann is empty, or contains only a little granular substance, and the nuclei are now less numerous than before. There is, in fact, only an atrophied tube with none of its original contents. These tubes lying side by side are folded and undulating, and appear like a strand of connective tissue.

These various stages of parenchymatous inflammation are to be seen in different fibres in the same specimen. Their appearance is identical with that observed in the course of degeneration of a nerve after compression, or after destruction of the spinal ganglion-cells. This has led such an accurate observer as Erb to advance the hypothesis that some slight changes in trophic cells in the spinal cord, not visible to the microscope, are present primarily, and that these changes are of a secondary nature.[1] But this cannot be admitted. Those who would explain the parenchymatous neuritis as secondary to changes in the cord, fail to explain why it should be limited, as it is, to the distal portion of the nerves, and not be continuous through the nerve-trunks, and anterior nerve roots into the anterior cells. They also offer no explanation for the cases in which the sensory, as well as the motor, nerves are affected, centrifugal degeneration of these nerves from spinal lesion being unknown. Strümpell, in meeting Erb's hypothesis, urges with reason that a parenchymatous neuritis has its parallel in other parenchymatous inflammations, and therefore does not need to be traced to any primary affection in trophic cells. He also mentions the existence of primary lateral sclerosis of the cord, similar in all respects to secondary degeneration of the pyramidal columns—yet now admitted to be a primary disease—as illustration of the fact that like changes are not always to be traced to one cause. It cannot but be admitted, therefore, that the first class of cases of neuritis must be considered as due to a primary parenchymatous inflammation in the nerve-fibres. This form seems to be much more frequent in its occurrence than the first variety, and constitutes the lesion in the majority of the cases hitherto reported. The appearance in section is seen in Fig. 5, *b*. The appearances of single fibres are the same as those shown in Figs. 2 and 3.

[1] Erb: Neurol. Centralbl., 1883, p. 481.

FIG. 5.



(After Joffroy.) *a*, Section through normal nerve; *b*, section through a degenerated nerve in a case of multiple neuritis, bundles reduced in size, individual fibres degenerating, their place taken by débris.

A second class of cases presents a different appearance.

In this class the mere inspection shows the nerve to have been the seat of pathological changes, for it is either congested, swollen, and lacking in lustre, or it is yellow and irregularly swelled by the accumulation of fat, or it is evidently reduced to a mere connective tissue strand. Upon teasing the nerve it is at once clear, from its brittleness, that individual fibres are lacking in continuity and are changed in structure. And if it is examined under the microscope the exudation of serum, and of lymphoid bodies, the great increase in the number of connective tisssue nuclei, the distended condition of the vessels, as well as the various appearances characteristic of nerve degeneration, are clearly seen. Here the inflammation is either originally an interstitial inflammation, or, more probably a diffuse one. It is possible that the degenerative processes in the nerves may have been due to the compression by the exuded products of inflammation within the nerve-sheath. In one or two cases where the patient died early in the disease, the nerve-fibres which lay near the vessels were affected to a greater degree than those lying deeper, and from this fact it was concluded that their degeneration was secondary. In other cases, however, all the fibres in a bundle are equally involved. Here it is probable that the inflammation was diffuse from the outset, paren-

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chyma and interstitial tissue being affected simultaneously. The final result in either case is a diffuse inflammation. One marked feature in these cases is the large amount of fatty deposit found in the altered nerves. This is to be ascribed to the fact that myelin in undergoing degeneration breaks down into globules, and undergoes a fatty change. It is itself allied to fat, and making up, as it does, a large part of the bulk of the fibre, it would be noticeable in the product of degeneration if it were not absorbed. In this form the absorption seems to be interfered with by the vascular condition, and hence the residual amount of fat is increased. The changes observed in the nerve-fibres are very similar to those seen in the first form of neuritis, and need not be described again.

It is to be noted that in both of these forms the pathological changes are always more intense in, and are occasionally limited to, the peripheral terminations of the nerves. The nerve-trunks may be slightly involved in their distal portions, but it is very rare to find any changes in them at their origin from the plexuses. And, as a rule, the spinal nerve-roots in cases of multiple neuritis are normal. In making autopsies upon such cases this fact is to be remembered, and the nerves are to be removed down to their finer branches in the muscles and fascia.

One additional pathological form must be mentioned, since it has been described by such a careful observer as Gombault.[1] It is the so-called segmental periaxillary neuritis. In toxic neuritis from lead-poisoning, Gombault found that the degenerative process was not uniform in the entire length of the nerve-fibre. On the contrary, entirely normal segments alternated with the degenerated segments in the nerve. Mayer has noticed a somewhat similar condition (Fig. 3, *e*). The changes already described take place in the myelin sheath of the affected segment, even to its entire absorption, leaving the axis-cylinder in the sheath of Schwann. But as the adjacent segments are not involved, regeneration is thought to be more easily accomplished. Pitres and Vaillard[2] have noticed a somewhat similar condition in the neuritis occurring after diphtheria, although in their case the axis-cylinder as well as the myelin sheath was totally destroyed in many segments.

While it is, of course, impossible to describe definitely the process which goes on to complete regeneration of nerves in multiple neuritis, there is no reason to suppose that it differs in any way from that observed in experimental lesions.

The time required for the completion of the process will depend upon the severity and extent of the degeneration. When that is slight the recovery may be rapid, cases having been reported where a total cure took place in two months. As a rule, however, it is a slow process. The large majority of the cases on record required over six months for the complete regeneration, and in not a few cases from ten to sixteen months elapsed before the condition of the nerves was proved to be normal by the total disappearance of all symptoms.

With the end of 1883 we may consider the third stage of pathological discovery in the history of multiple neuritis as terminating. At that date the symptoms of the disease had been recognized as constituting a distinct clinical picture; hypothetical lesions in the spinal cord had been abandoned, and the exact pathology of the disease had been ascertained. Since 1883 the final period in the development of knowledge of the affection has been in progress. About one hundred cases, of varying degrees of severity, have been observed (see bibliography). The lesions described have been confirmed in all their details. The symptoms arising in the course of the disease have been subjected to careful analysis, together with their varied modes of combination. Certain diseases hitherto considered of spinal origin, are found to be due to peripheral disease. Thus it has been discovered that a form of ataxia may occur from multiple neuritis of alcoholic or arsenical poisoning, which closely resembles and was formerly confounded with tabes; also, that some cases supposed to be anterior poliomyelitis must now be differently named. And as physicians review their records, they find that former diagnoses require revision in the light of new discoveries, and that greater circumspection is to be exercised in differentiating spinal from peripheral affections. The grounds for such differential diagnosis will require attention in the next lecture. And, what is perhaps of greater importance, the fact has been elicited that some combinations of symptoms formerly supposed to be without a pathological basis, some of the so-called peripheral neuroses, really belong to this class of diseases. At present we have only time to allude to one or two forms of peripheral neuroses which must be removed from that unsatisfactory category of disease and be considered as peripheral neuritis.

And the first of these is the affection termed numb-fingers. This was first described by J. J. Putnam, of Boston, but met with instant recognition from neurologists, and from general practitioners all over the world. It is a disease chiefly seen in women between the ages of forty and sixty, usually associated with dyspeptic or uterine symptoms, but entirely independent of them. It begins as a tingling sensation in the ends of the fingers, felt at night, and sufficiently annoying to keep the patient awake. It then extends to the entire fingers, and may invade the hand, and is felt by day as well as by night. The fingers are so numb that all finer acts become impossible; the patient can no longer sew or knit, cannot be sure of holding anything securely, and finds herself unable to perform any delicate movement. Sometimes a slight degree of anæsthesia and analgesia can be discovered by ordinary tests, but often the disturbance of sensation is purely subjective. There is rarely any incoördination, and paresis is usually wanting. It may develop in the feet as well as in the hands, making walking more or less disagreeable, and adding to the discomfort of the patient. The affection is of indefinite duration; often subsiding quickly under treatment, sometimes baffling all attempts to arrest it. For a time it was considered a purely functional affection, then a spinal cord disease; but now, in the light of the parallelism between the symptoms mentioned and those which are characteristic of multiple neuritis, we cannot but consider it a slight form of this disease.[1]

[1] Gombault: Archives de Phys., 1873, p. 592; also Arch. de Neurol., i, 1.

[2] Pitres et Vaillard: De la Névrite segmentaire, Arch. de Neurol., xi. 337.

[1] Ormerod: St. Bart. Hosp. Rep., 1883, Sinkler: Phil. Med. Times, 1885.

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The second of the peripheral neuroses which must be referred to peripheral neuritis is intermittent paralysis. Cases of sudden paraplegia, lasting a few hours and passing off as rapidly as they appeared, have been observed too frequently to admit of any doubt. Westphal has described such a case in which no cause could be found. Gibney reported some cases presumably due to malaria. Others have thought the disease of functional character, either central or peripheral. But in the light of recent observations upon infectious cases of multiple neuritis it becomes evident that these sudden, transient paraplegiæ find their adequate explanation in such an affection.

And, lastly, there are numerous cases of indefinite nervous symptoms, pain of various kinds, formication, and odd sensations grouped under the indefinite term numbness, flashes of cold and heat accompanied by actual changes in the temperature of the part, or only by apparent vascular irregularities, slight spasms, or tremors; functional weakness, with sense of fatigue not reaching the grade of paresis, and many equally obscure manifestations of disturbed function in various parts of the body, which receive their best explanation in the theory of multiple neuritis.[1]

Since it was one of the objects of the founder of this lectureship to determine the true nature of such peripheral neuroses, it is with the greater interest that we examine the disease to which they must be assigned.

In the present stage of progress in the history of neuritis much attention is being given to the etiology of the disease. Cases which, from their causation, were formerly separated, are now found to be closely allied in their pathology. Thus the forms of paralysis occurring after the ingestion of various poisons, such as arsenic, lead, and alcohol, are known to be due to a common pathological change. The various kinds of sensory and motor disturbance occurring as complications of the acute diseases, diphtheria, variola, typhoid and typhus fevers, and severe malarial fever, are traced to a lesion in the peripheral nerves. Tuberculosis is known to predispose to neuritis, and many cases formerly supposed, without question, to be produced by central or meningeal affections of a tubercular character, are now assigned to a peripheral cause. It is a question whether syphilis will cause a simple degenerative neuritis, but syphilitic affections of the nerves are easily recognized and well known. Nor can the nervous system escape the action of those microörganisms which are now recognized as the constant cause of many diseases. There is an epidemic form of multiple neuritis, fortunately not prevalent in this country, but occasionally imported here in the form of sporadic cases, known as kakke, or beri-beri, the bacillus of which has recently been discovered and cultivated. And, lastly, there is a class of cases, of supposed spontaneous origin, in which cold or overexertion are assigned as causes, but which need further investigation in regard to their etiology.

It is evident from this array of causes that several conditions formerly separated from one another because of the different circumstances of their occurrence are really forms of the same disease. But while they may be brought together upon a pathological basis, and while all have many symptoms in common, each of the forms of neuritis presents certain distinct features. Without dwelling too long upon any single variety, it will be necessary to review the different classes of cases in order to obtain a clinical picture of each. And such a review, together with the analysis of the symptoms of multiple neuritis, the discussion of its diagnosis from other diseases, its prognosis, and the treatment, will occupy us at the next lecture.

[1] Acroneuroses, Dana. N. Y. Med. Record, July, 1885.

ORIGINAL ARTICLES.

A NEW METHOD OF TREATING CHRONIC AURAL CATARRH.

By RALPH W. SEISS, M.D.,
INSTRUCTOR IN PATHOLOGY AND CHIEF OF EAR CLINIC IN THE PHILADELPHIA POLYCLINIC.

WHILE engaged in the study of the pathology of naso-aural catarrh during November and December, 1885, my attention was particularly drawn to the persistency of certain conditions of the pharyngeal mouth of the Eustachian tubes, as important factors in the general disease. Three principal forms of inflammatory disease of the tubes were noted: 1st. A condition of turgescence and inflammatory infiltration, the tubal lips appearing red and swollen, and secretion from the tubal glands being very active; the nasal pathological condition in these cases was hypertrophic catarrh in the stage of chronic venous distention with infiltration. 2d. The condition here noted accompanied advanced hypertrophic nasal catarrh, the turbinated bodies being largely converted into fibrous tissue. The prominence at the mouth of the tube was here found to be hypertrophied, the color was a dull reddish-yellow on the inferior and bright red on the superior surface. The pharyngeal tonsil was found to be enlarged, and the posterior nares more or less blocked with posterior hypertrophies. In these cases the mouth of the tube was frequently found completely filled with tenacious mucus. 3d. The third condition noted accompanied atrophic rhinitis, and here the lips of the tube were shrunken, the mucous membrane undergoing sclerosis, and the tubal mouth was often blocked by dried crusts.

It was found that after prolonged treatment of the nasal affection had partially or wholly cured the intra-nasal disease, that although the inflammatory conditions present in the Eustachian tubes might be improved, they were rarely if ever cured, the disease persisting in the last half inch of the tube.

Applications made directly to the tubal mouth with the post-nasal applicator or atomizer also gave but slightly better results. Various methods of treatment were tried without avail: the older methods of injecting solutions through the ordinary Eustachian catheter into the canal and middle ear were not tried, the evil effects of these applications in causing acute otitis media and severe inflammation high up in the tube being now well demonstrated.

With the object of making applications to the tube alone without danger of the fluid being forced into the middle ear or high up in the tube, I have devised the following instrument. It consists of an Eustachian catheter closed at the point, and having

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the sides of the curved portion perforated with numerous very minute openings. A small syringe is fitted with a metallic nozzle fitting on the ground joint principle into the end of the catheter. The instrument may be made of German silver, but is better made of pure silver. The best average diameter is that of an ordinary Eustachian catheter—three to four millimetres—and the length is about the same, from fourteen to sixteen centimetres. The instrument is introduced along the floor of the nasal fossa like the older form of catheter, and when the beak is fixed in the Eustachian tube, suitable solutions can be injected through it, so thoroughly washing out and medicating the lower part of the canal, without the possibility of any of the fluid entering the middle ear or ascending high up in the tube, the fluid being thrown wholly in a lateral direction through the minute perforations.

Sponge-catheter: showing the manner in which solutions are thrown into the Eustachian tube.

In the first class of cases, those accompanied by turgescence and infiltration of the tubal lips with hypersecretion, two drachms of either of the following solutions were injected through the syringe catheter. Dobell's solution of the following formula: ℞.—Acid. carbol. c. p. gr. jss; sodæ borat., sodæ bicarb. āā gr. ij; glycerinæ ♏x; aquæ dest. fʒj.—M. And a saturated solution of boric acid in water and glycerine, ♏xx to fʒj. This form of treatment has been used with especial care in six cases of chronic aural catarrh accompanied by deafness and tinnitus aurium, and in every case with very marked results; the turgescence of the tubal lips subsided, the secretion became less in amount, and the patients volunteered the statement that they felt better; hearing in all cases was improved—two to five feet improvement for voice—and the tinnitus either grew better or slowly faded away entirely. The injections were made twice a week, the nares and pharynx being meanwhile under appropriate treatment. The syringe catheter has been used as an adjunct to older forms of treatment in from twenty to thirty additional cases, of which full notes have not been kept, but in almost every instance better results were obtained than from the use of the older methods alone.

In the second class of cases either the boric acid solution or the following was used: ℞.—Zinci sulph. gr. ij; acid. boric. gr. x; glycerinæ, ♏xx; aquæ dest. q. s. ad. fʒj, twice a week, a single syringeful (fʒj) being injected into the lower end of each tube. Much less marked results were obtained in these cases, but yet far better than has been obtained by any other method previously used by us. The tubal mouth soon became free from sticky mucus, hearing improved slightly, and the distressing tinnitus aurium was reduced to a minimum. The "lop-sided" "stuffed-up" feeling and dull aural pain, of which these patients almost invariably complain, were entirely relieved in the five cases in which this treatment has been regularly tried. The injections were here continued from three to six weeks.

In the third class of patients, those suffering from atrophic catarrh, but little good was achieved by the use of the syringe catheter—and the same may be said of all forms of treatment of the *nasal* lesions in many cases of this disease. The solutions used in these cases were a Listerine (Lambert) solution of the strength of fʒjss to fʒviij of water, and in certain forms of sclerosis Boulton's solution, of which the following is the formula: ℞.—Tinct. iodini comp. ♏xx; ac. carbol. (cryst.), ♏vj; glycerinæ fʒvij; aq. dest. fʒv.—M., and place in water bath of 100° until the solution becomes colorless.

Some relief from tinnitus and slight though appreciable improvement in hearing were, however, obtained in some of these cases by the use of this instrument along with careful treatment of the throat and nares, the results exceeding our expectations.

We have also used this catheter in a number of cases of acute tubal catarrh following coryza, using solutions of cocaine muriate, morphine sulphate, and boric acid of various strengths, with marked benefit; and treatment by the syringe has done much good in the severe tubal inflammation which usually accompanies purulent otorrhœa, various solutions being used. Prof. C. H. Burnett, to whom I am indebted for many suggestions and favors while devising and testing this catheter, has used the instrument to a considerable extent in his private practice, and tells me he has had markedly good results in some cases of chronic catarrh in which it was regularly used.

Considerable care and experience are requisite to use the instrument properly; after carefully fixing the beak in the mouth of the tube, the solution must be injected without forcing the curved portion forcibly against either wall, and the moment the fluid is thrown in the catheter must be withdrawn, or the patient will be choked by the fluid deluging his larynx as soon as the palate is relaxed. Of course, the rules which govern the introduction of the ordinary Eustachian catheter must be observed here, no force whatever being used. In skilful hands we have never seen the application do any harm whatever, or cause any considerable pain.

Without claiming great things for this little instrument, a year's experience with it has demonstrated to us its great value in selected cases, and we think it may serve a good purpose in aural therapeutics.

The instrument is made by Chas. Lentz & Sons, 18 North Eleventh St., Phila.

49 NORTH 17TH STREET, PHILADELPHIA.

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STEEL PIN IMPACTED IN LEFT BRONCHUS FOR TWENTY-THREE MONTHS; SPONTANEOUS EXPULSION AFTER TRACHEOTOMY; RECOVERY.

BY H. R. WHARTON, M.D.,
SURGEON TO THE CHILDREN'S HOSPITAL, INSTRUCTOR IN CLINICAL SURGERY IN THE UNIVERSITY OF PENNSYLVANIA, AND ASSISTANT SURGEON TO THE UNIVERSITY HOSPITAL.

ELLEN MCD., aged seven years, was admitted to the Children's Hospital July 3, 1884, with the following history: On July 1st she had swallowed a large glass-headed mourning pin, which act was immediately followed by a violent paroxysm of coughing and difficult breathing; both of these symptoms had continued and increased in severity up to the time of her admission into the hospital.

When I saw her a short time after her admission, she presented symptoms of dyspnœa of so urgent a character that I immediately performed tracheotomy, which relieved her dyspnœa, but a careful search of the trachea failed to reveal the presence of the foreign body. A tracheal tube was introduced and the case was carefully watched, but she had no further return of her symptoms of dyspnœa during seven weeks' stay in the hospital.

During this time her temperature was considerably elevated and she presented an area of dulness over the apex of the left lung posteriorly.

The tube was removed at the end of three weeks, and at this time the trachea and right and left bronchi were again explored to discover the presence of the foreign body, but without success. After this the wound healed promptly and the patient was discharged from the hospital. The patient was under observation in the out-patient department of the hospital for some time, but presented no further symptoms of respiratory obstruction, although she had at times a cough, and examination of the chest revealed dulness and moist râles over the upper portion of the left lung posteriorly.

In July, 1885, she had a sudden and severe attack of dyspnœa which passed off in a few hours; in this attack she was seen by Dr. Morris J. Lewis, one of the physicians to the hospital, who described her condition as very alarming.

She presented herself at the hospital a few days after this attack, and examination of the chest revealed the same conditions as are mentioned above.

In June, 1886, she had a severe paroxysm of dyspnœa and coughing, and expectorated a steel glass-headed pin one and seven-eighths inches in length, which had remained in her respiratory passages for twenty-three months. After this she had no further trouble, and the cough of which she had complained at times completely disappeared.

Remarks.—Although foreign bodies may remain impacted in the air-passages for a considerable period of time without producing alarming symptoms, and finally be expelled spontaneously, yet it cannot be denied that their presence may give rise to complications which will place the life of the patient in imminent danger, so that it is generally conceded that surgical procedures should be promptly adopted for their removal.

A point of interest in this case was the entire relief of the urgent dyspnœa afforded by the operation of tracheotomy, although the opening into the trachea was far above the site of the impaction of the foreign body, and I have seen the same relief afforded when the operation has been performed in diphtheritic cases, in which the trachea was found obstructed with membrane adherent to the trachea below the tracheal wound; and I think this can only be explained by the theory that in all these cases the dyspnœa is in a measure due to a reflex laryngeal spasm. The sudden and severe attack of dyspnœa occurring about a year after the introduction of the foreign body into the air-passages, was at the time supposed to be due to the change of position of the foreign body, which, in the light of recent developments, was probably the correct explanation, as the foreign body was subsequently expelled during an attack of this kind.

TREATMENT OF THREATENED RUPTURE OF THE UTERUS BY MANIPULATION AND POSTURE.

BY E. P. DAVIS, M.D.,
OF PHILADELPHIA.

THE following case will serve as a type of some of those in which this serious accident is threatened, and the mode of treatment was found conservative and efficient.

A. B., primipara, a well-formed brunette, aged twenty, had entered the first stage of labor. Abdominal palpation demonstrated that the fœtus occupied the right half of the uterus, its back at the mother's right; the feet in the right upper segment of the uterus; the heart sounds heard plainest on the right side below the umbilicus; the head at the symphysis pubis. Upon vaginal examination the frontal suture was found extending obliquely to the left sacro-iliac synchondrosis: the greater fontanelle lay in the centre. The os uteri was permeable for only two fingers. The inspection of the abdomen showed at the upper border of the lower uterine segment and upon the right a well-marked bulging; it was evident that the distention of the uterus at this point was excessive. Meconium was constantly escaping in small quantities; labor pains were regular, but of moderate strength; fœtal heart sounds were regular and strong.

The fœtal position was evidently strong cephalic extension, and it was probable that operative interference would be necessary; the danger most imminent was uterine rupture.

In the non-dilated condition of the os uteri it was determined to endeavor to secure rotation and spontaneous birth by posture and external manipulation. The patient was accordingly placed upon her left side; an attendant was ordered to sit beside her, and, by gentle manual pressure upon the abdominal projection, aid in rotation; the fœtal heart and the maternal temperature were carefully watched; the pressure made was gentle and intermittent. In less than three hours the tumor had become smaller, and vaginal examination showed an improvement in the position of the head. This improvement continued; the labor was tedious, but operative interference was

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not necessary; and in about twelve hours from its beginning labor terminated normally, and the puerperal period was without complication.

In cases of this kind which occur where a trained attendant is not obtainable, a method employed by Betz, and described in the *Wiener med. chirurg. Centralblatt* for November 26, 1886, will commend itself. Betz used a sandbag weighing five or six pounds, which afforded continuous pressure from a broad and perfectly applied surface. This was laid upon the projection formed by the head, and its position changed from time to time as the sensations of the patient indicated. In five hours the natural forces effected rotation, and the labor ended spontaneously.

These simple methods of aiding flexion and rotation at a period of labor when operative interference is difficult and dangerous are certainly worthy of consideration, especially when so serious a complication as uterine rupture is threatened.

MEDICAL PROGRESS.

EFFECT OF FREEZING ON THE TYPHOID GERM.—DR. JOHN S. BILLINGS, U. S. A., writes as follows to the *Sanitary Engineer* of Jan. 29, 1887:

It is well known that freezing water does not destroy the vitality of all living organisms contained in it, although it does appear to kill some of them. To settle the question as to the effect of freezing on the bacillus of typhoid, I have had the following experiments made:

Jan. 10, 1887. Five cubic centimetres of sterilized water in a test-tube were inoculated with typhoid bacillus and exposed to the outer air during the following night at a temperature of about 10° F. It was found solidly frozen in the morning.

Jan. 11, 2 P.M. This frozen mass was thawed, and from it there were inoculated one agar and three gelatine tubes.

Jan. 13, 10 A.M. There is decided typical development of the typhoid bacillus in the agar tube and in two of the gelatine tubes.

Evidently, therefore, the vitality of the typhoid bacillus is not destroyed by freezing.

DRUMINE: A NEW LOCAL ANÆSTHETIC.—An alkaloid has lately been obtained from the plant, Euphorbia Drummondii, N.O. Euphorbiaceæ, by Dr. John Reid, of Port Germein, South Australia, which promises, if report be true, to compete with cocaine, as an agent for producing local anæsthesia. A tincture of the plant is made with rectified spirit, or proof spirit, acidulated with hydrochloric acid, and, after standing a few days, the spirit is distilled off, ammonia added in excess, and the whole filtered. The residue, after the smell of ammonia has disappeared, is dissolved in dilute hydrochloric acid, and filtered through animal charcoal, to destroy the coloring matter which is abundant and inactive. This filtrate is evaporated slowly, and leaves the alkaloid. It gives a colorless solution, with little taste. It is almost insoluble in ether, freely soluble in chloroform and water, and deposits from solution microscopic acicular and stellate crystals. The crystals deposited from the hydrochloric solution filtered through animal charcoal, are circular or boat-shaped. They are colorless, and seem to be less soluble in chloroform. Sheep and cattle are stated to die in great numbers annually, in consequence of having eaten this plant, the poisonous qualities of which vary in proportion to the quantity of milky juice present. Sheep, bullocks, and horses die in from twenty-four hours to seven days after eating it, all of them presenting paralysis of the extremities, some of them hanging the head as if tipsy; the appetite does not appear to be interfered with. It is curious that the animals avoid the weed at first, except under pressure of hunger, but once having partaken of it, they seek for it and eat it with avidity. Injection of a solution of the alkaloid into the nostrils of a cat, produced stupidity and indifference to stimuli, with a placid, stupid expression like that of an animal under the influence of a narcotic. The limbs appeared paretic. A few drops of a four per cent. solution dropped into the eyes of another cat produced insensibility to the extent of allowing the conjunctiva to be touched, and the orbicular muscle no longer contracted with the same vigor. The pupil was not appreciably dilated. Three grains were then injected subcutaneously, but, beyond local anæsthesia, no effect was noted. A larger dose by the mouth promptly produced paralysis of the limbs, and slow, difficult breathing. When dying, strychnine was injected, but failed to produce any muscular contractions. Ten minims of the 4 per cent. solution injected into the hind leg of a cat, seemed to produce paralysis of sensation, but not of motion. No convulsions ever followed its use. In the course of experiments on his own person, Dr. Reid found that the drug produced anæsthesia, with loss of taste when applied to the tongue or nostril; but small doses swallowed were not followed by any perceptible constitutional symptoms. He tried it subcutaneously in a case of confirmed sciatica in an old man, and the essay was followed by complete, and, so far, permanent relief; in sprains, it was very useful in relieving the pain. Dr. Reid recommends the use of the alkaloid in small operations, local irritation, and sprains.—*British Medical Journal*, Jan. 1, 1887.

FORMULÆ FOR LANOLINE OINTMENTS.—A compound of diachylon ointment and lanoline, useful in eczema, is as follows:

Unguent. plumbi,	
Lanolinæ	āā 50 parts.
Adipis	10 "

In seborrhœa:

Lanolinæ	℥jss.
Olei theobromæ,	
Adipis	āā ℈iv.
Tinct. benzoin.	℈ij.
Ætheris	gtt. ij.

Used as a pomade.

The following is a lanoline cream:

Spermaceti	10 parts.
Ol. olivæ	30 "
Lanolinæ	40 "
Aquæ	50 "

This is also useful in seborrhœa.

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Wilkinson has used the following prescription successfully in scabies:

Sulphur. sublimat.,	
Picis liquid.	āā ʒij.
Lanolinæ,	
Sapo. virid.	āā ʒss.
Pumicis pulv.	gr. 75.

In the efflorescences of psoriasis, the following pomade is useful:

Chrysarobinæ	10 parts.
Lanolinæ	40 "
Adipis	10 "

—*Annales de Dermatalogie et de Syphiligraphie*, December 25, 1886.

ABSORPTION OF FAT IN ACUTE INTESTINAL CATARRH.—DR. VIAZHLINSKI, who has been working in Professor Ivanovski's laboratory of pathological anatomy in St. Petersburg, has published an interesting paper on the question of the absortion of fat in acute catarrh of the small intestine. The literature, to which he first alludes, comprises more than ninety papers, etc., including those published by Goodsir, Schäfer, and Watney in this country. His own observations were conducted by inducing acute intestinal catarrh in animals by means of irritant drugs, and then feeding them with milk or other fat-containing food, after which the animal was killed and the intestinal villi examined with the help of osmic acid, which he found the most satisfactory agent for making the preparations. The drugs used were colchicin and croton oil. Several animals (cats and dogs) died, so the quantity of colchicin was reduced from one-thirtieth to one-sixtieth or one-hundredth of a grain, which produced choleraic stools. Croton oil was given in repeated doses of five or six drops, producing diarrhœa with exhaustion. When the animal presented, besides diarrhœa, an inflated abdomen, constant borborygmi, and a considerable degree of exhaustion, an acute catarrh of the small intestine was considered to have been established, and the fatty food was administered. The microscopic observations showed that in catarrhal conditions, as well as in health, the fatty particles are absorbed by their inclusion within round or amœboid cells—*i. e.*, leucocytes—the differences in the diseased state being merely a quantitative one. No evidence could be obtained of any part being taken by the epithelial cells in the absorption of fat.—*Lancet*, Jan. 8, 1887.

PARAFFIN IN SURGERY.—It is perhaps not so well known in the profession as it ought to be that paraffin is a most useful material in surgery, in many cases superseding plaster of Paris. It answers admirably for splints, and for jackets for young children suffering from spinal disease. The advantages of it are that it is clean, light, is capable of being moulded while it is soft, and sets rapidly by pouring cold water on it. It must be procured with a melting point of 130°. When ordering it it is necessary to specify the melting point required. The mode of using it is this: The paraffin is melted by placing a tin can containing it in a pot of boiling water. A muslin bandage well sprinkled with iodoform is put on the limb, or other part to which the paraffin dressing is to be applied. Muslin bandages loosely rolled are allowed to soak in the paraffin for a few minutes. If much support is required a piece of cotton-wool is also soaked in the paraffin. This is placed where most stiffness is wanted, and the bandages applied as for plaster-of-Paris dressing. They may, however, be drawn tight as the paraffin shrinks from the limb in cooling. Cold water is then poured on it, and the limb held in position till the paraffin has set. When a bone tends to project, it can be kept in position by the finger till the paraffin has set. The hole left by the finger can then be filled up with some melted paraffin. In cases of compound fracture the paraffin has the great advantage of not being affected by the discharge from the wound.—*Provincial Medical Journal*, Jan. 1, 1887.

CALOMEL IN HEART DISEASES.—STITLER has added to the studies of Jendrássik on the diuretic effects of calomel, and reports his experiences with fourteen cases. The daily dose was from seven to nine grains, and was invariably followed by good results.

In the case of a man, aged sixty-five, suffering from mitral insufficiency and chronic endarteritis, the symptoms of hepatic congestion, general œdema, and dyspnœa were promptly relieved, and a progressive diuresis occurred which began with the passage of 30 ounces of urine daily, and increased until at one time a maximum of 100 ounces was reached. The diarrhœa caused by the calomel was moderated by opium.

Stitler observes that the drug should be given three or four days before the diuretic effect can be expected, and then it is prudent to suppress it when diuresis is fully established.

It is a valuable adjuvant to digitalis in the treatment of cardiac disease.—*Bulletin Général de Thérapeutique*, November 30, 1886.

THE TYPHOID BACILLUS.—MM. WIDAL and CHANTEMESSE have succeeded in carrying researches on the bacillus of typhoid rather further than Gaffky, who described it. The centre clear space is not, they say, characteristic, as Artaud supposed, for it is found in other bacilli, especially those of old cultures; and it is, they believe, the beginning of the death of the microbe. Spores are produced between 37° and 38° C. It does not liquefy gelatine, and is easily cultivated on potato. Gaffky was unable to find the bacillus in the living subject, or to inoculate it. MM. Widal and Chantemesse have found it during life by making a capillary puncture of the spleen, and they have been able to inoculate both mice and guinea-pigs so as to find the bacillus in the abdominal viscera and lungs. In a case where a typhoid patient aborted in the fourth month the bacillus was found in the placenta.—*Lancet*, January 15, 1887.

TROUBLES OF HEARING AMONG RAILWAY EMPLOYÉS.—LICHTENBERG, of Budapest, has examined the hearing of 250 railway employés, and found 92, 36.8 per cent., in the number who had impaired hearing: 32 of the cases were catarrhal affections, 3 were diseases of the labyrinth, and 30 cases were those of the external ear. These results show the prevalence of impairment of hearing among a class whose occupation exposes them to such diseases, and in whom the public are interested as occupying responsible positions.—*Revue Mensuelle de Laryngologie*, January 1, 1887.

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SATURDAY, FEBRUARY 5, 1887.

ANTIFEBRIN.

FROM the reports in our German exchanges we notice that this new remedy has received an extensive trial, and the results so far seem to indicate that another valuable antipyretic has been added to our resources. Antifebrin is a neutral body prepared by heating aniline with acetic acid, and, when purified by successive crystallizations, it forms a white, odorless powder with a sharp but not unpleasant taste. It is insoluble in cold water, but soluble in warm water, or alcoholic fluids.

CAHN and HEPP, who introduced the drug, have been studying its effects in Kussmaul's wards at Strassburg, and in Nos. 1 and 2 of *Berliner klin. Wochenschrift*, 1887, give a full account of their observations based upon its use in sixty cases. It is given in doses of from five to fifteen grains. Eight grains is the usual dose, and it may be administered in warm water, or in a little alcohol and water, or in capsule. In larger doses it is not poisonous, and from sixty to ninety grains have been taken in the day without any ill effects. Fever patients rarely require more than thirty grains a day in divided doses. It is best to give a single dose of eight grains, to be followed, if necessary, by smaller amounts, in order to keep down the temperature. The effect is usually manifest in an hour, and, as a rule, there is a reduction of from three to five degrees in as many hours. Sometimes the fall is more rapid, and within two hours there may be a drop of five or six degrees. Copious sweating is almost invariably associated with its action. Chills have not been observed. The drug is well borne by the stomach, and in no case caused nausea or vomiting. The duration of action is variable, but in the acute fevers, after four or five hours the temperature gradually rises again. The administration of smaller doses may check this tendency. In typhoid cases an improvement in the general condition was often noticed after its use, and the mind became clearer. In other instances the patients expressed themselves as more comfortable; and in no case was there the depression which is sometimes seen after the administration of antipyrin or thallin. The pulse is also reduced in frequency, and the secretion of urine increased. The authors doubt if antifebrin has any specific action in typhoid fever, but in acute rheumatism it seems to act like antipyrin, not only on the fever but also on the inflammation, reducing the swelling and relieving the pain.

We can confirm these observations on the use of antifebrin. We have found that it acts promptly in comparatively small doses, is easy to take, and is free from the unpleasant after-effects of some other antipyretics. It is a cheap drug, costing not half the price of antipyrin, and seems likely to prove a valuable addition to the pharmacopœia.

INTRAPERITONEAL RUPTURE OF THE BLADDER.

THE late Professor Gross, in 1851, suggested the propriety of opening the abdomen and sponging out the extravasated urine and blood in intraperitoneal rupture of the bladder, with the retention of a catheter in the organ; a suggestion which was successfully resorted to, in 1862, by Walter, of Pittsburg, and, subsequently, with fatal results, the bladder itself having been sutured, by Willett, Heath, and McGill. Hofmokl had a recovery after laparotomy and suture, but in his case the description does not indubitably show that the rent involved the peritoneal investment of the viscus.

The almost uniformly fatal issue of this rare accident, with or without surgical intervention, adds additional interest to two recoveries recorded in *The Lancet* for December 11, 1886, by SIR WILLIAM MACCORMAC. In both cases the belly was opened, the laceration closed, and the cavity of the peritoneum washed out with a one per cent. warm boric solution. In one the rent, four inches long, and extending from the superior fundus to the rectovesical cul-de-sac, was closed with sixteen points of Lembert's suture, made with fine carbolized silk, and additional catgut sutures fortified the line of union where closure seemed to be insufficient between the silk stitches. In the second case the laceration involved two inches of the upper and posterior part of the bladder, and was closed by twelve points of suture, carried, as in the first case, through the serous and muscular tunics. In one a glass drainage tube, carried into the rectovesical cul-de-sac, was allowed to remain for four days, and a soft catheter was retained in the bladder; but these con-

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trivances were dispensed with in the second case, as indeed, they may always be, provided peritonitis is absent, and distention of the bladder with boric solution shows that it does not leak.

It need scarcely be said that it is very desirable to intervene at as early a date as possible when the bladder is ruptured; but before severe symptoms have set in, the recognition of the accident is not always easy. Hence, in the earlier period, instead of practising an exploratory laparotomy in doubtful cases, it will be better to resort to the simple expedient recently described by R. F. WEIR, in the *Medical Record* for January 22d. In a patient, seen by that surgeon six hours after a crush, the decision of intraperitoneal rupture was difficult to arrive at, but it was satisfactorily solved in the negative by distending the bladder. A rubber catheter having been passed into the viscus, a Petersen's bag was inserted into the rectum and filled with seven and a half ounces of water. The line of suprapubic dulness having next been outlined by a colored pencil, a similar amount of carbolized water was thrown into the bladder, through which the contour of the viscus could be plainly felt above the line of blood extravasation previously felt in the suprapubic region. The water was then allowed to escape, and measured, when it was found to correspond to the quantity thrown in. Hence, the demonstration of absence of laceration of the bladder was perfect. Weir urges that the distention of both the rectum and the bladder, in making this test, should not exceed seven or eight ounces.

MULTIPLE NEURITIS.

DR. ALLEN STARR has been particularly happy in his choice of a subject for the first course of the Middleton Goldsmith Lectures. Although it is only six years ago since Leyden established the status of multiple neuritis as a distinct disease, a very large number of facts have accumulated, and an attempt is here made to classify these facts, to weigh their importance, to draw logical conclusions from them, and to present these conclusions in a clear and accessible form. The historical sketch with which the lecture opens presents many points of interest, to which, had we space, we would gladly refer, but we must allude to the vivid description of alcoholic paralysis by that great New England physician, James Jackson, in 1822. As Dr. Starr remarks, it is scarcely possible, at the present day, to add to his account of the main features of this important form of multiple neuritis.

The elaborate discussion of the histology of nerves and of the processes involved in their degeneration and regeneration clears the way for a statement of the morbid anatomy of multiple neuritis. There is still much to be done before we possess a satisfactory anatomical picture of all the stages of parenchymatous inflammation in nerves. In many instances it appears identical with the degeneration which follows compression of a nerve, or destruction of the spinal ganglion cells, while in others it seems to be preceded by an acute diffuse neuritis, with swelling and exudation of serum and leucocytes. An important feature is the frequent limitation of these changes to the peripheral termination of the nerve, and in future investigations this should be carefully borne in mind.

The etiology of multiple neuritis is curiously associated with toxic agents of various kinds. Lead, arsenic, and alcohol are responsible for a large proportion of the cases. The acute specific diseases, diphtheria, smallpox, scarlet fever, measles, and typhoid fever, are not infrequently complicated with motor and sensory disturbances, which we now know to be due to lesions of the peripheral nerves. Syphilis is a doubtful cause. The accurate studies which have been made of that remarkable disease, beri-beri, have thrown important light on the etiology of peripheral neuritis, and the observations which indicate that there is a special bacillus associated with the disease are of special interest in connection with the nerve lesions in lepra, which are apparently induced by the development of parasites in the nerve-sheaths.

MYOSITIS OSSIFICANS.

THE occurrence of the development of bony tumors in the substance of the muscles is sufficiently rare to make it worth while to call attention to a case of this kind reported recently by SYMPSON, in the *British Medical Journal*. The patient was a boy seven years old, with a distinct family history of rheumatism, although he had never had this disease, and of an injury—a fall upon the right shoulder, followed by a painful swelling over the scapula of the same side, which subsided and was succeeded by a similar swelling over the other scapula. At the time of observation, March 27, 1885, the boy had no motion in the right shoulder-joint and but little in the left. There were elastic nodulated tumors over both scapulæ, and in the position of the long head of the right triceps. The tumors were tender on pressure.

Nearly a year later a saddle of bone covered the loins, and there was a series of lumps, apparently bony, on the margin of each latissimus dorsi, each teres major, the long head of the right triceps, in the left trapezius below the occiput, in the middle of the right trapezius, and in the supraspinous fossa. The boy also had a curious malformation of the head of each first metatarsal bone, which was large and prominent, while each great toe was small, consist-

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ing, apparently, of but one phalanx, and directed toward the fibular side of the foot.

The nature of myositis ossificans is not well understood, hereditary predisposition being the most satisfactory explanation of its cause. The subject has been quite fully discussed by Seidel, in Gerhardt's *Kinderkrankheiten*, Bd. v. Abth. 2; by Pinter, in his *Inaugural Dissertation*, Wurzburg, 1883; by Mays, in Virchow's *Archiv*, Bd. lxxiv., 1878; and by Rogers, in *The American Journal of the Medical Sciences*, vol. xiii., 1833. All of these papers are referred to by Mr. Sympson, who cites other writers on the same subject, but leaves the subject about as obscure as he finds it. The most unfortunate aspect of the whole discussion is the fact that so far no satisfactory method of treating this curious disease has been discovered.

ASPIRATION OF THE STOMACH.

IN the *Dublin Journal of Medical Science* for January, 1887, FOY reports a case of alcoholic coma in which he drew off from the stomach, with an aspirator, a quantity of claret-colored liquid. The man had taken claret and whiskey very freely, and for two hours every effort had been made in vain to arouse him. When seen, he was totally devoid of sensibility, the extremities were cold, the face livid, the pupils widely dilated, respiration hardly detectable, no pulse, and the heart-impulse scarcely to be felt. He was bled to sixteen ounces, and while the blood was flowing a fine trocar was thrust through the abdominal wall, upward, backward, and outward from its point of entrance at the sternal end of the eighth rib, and the contents of the stomach aspirated. The quantity of ingesta removed was not stated, but the organ was not emptied, lest the canula should slip and fluid escape from it into the peritoneum. The heart commenced to beat, and respiration was restored. The stomach was then washed out, and soon afterward the man was able to speak, and the next day was well enough to go home.

The operation is defended on the grounds that the respirations were too feeble to permit of the introduction of the stomach-tube, and that apomorphia would not act in a condition of alcoholic coma.

As stated by Dieulafoy, aspiration of the stomach was performed by Paul in 1873, in a case of opium-poisoning in a child. It has also been used in cases of extreme dilatation of the stomach from stricture of the pylorus. In the case here noted we are inclined to attribute the man's recovery to the bleeding rather than to the aspiration, and it is possible that by waiting for the effects of the bleeding, the stomach-tube might have been passed without danger, and the risk of an abdominal puncture avoided.

A NEW laboratory for the furtherance of medical investigation, which will be built in Brooklyn next spring, promises to be a model institution of its kind. Exteriorly the building will present an imposing appearance, while within the arrangements will have the advantage of a careful study of those of the Johns Hopkins University and elsewhere. Being the outgrowth of private munificence, this institution will be welcomed as another indication that medicine in this country has passed into the era when it will, more often than formerly, share in the endowment gifts of the public-spirited and wealthy.

The new institution will be known as the Hoagland Laboratory, named after its founder, Dr. C. N. Hoagland, of the above city, a physician by education, not in practice, but who has at heart the advancement of scientific medicine. The plan includes a lecture-hall, rooms that will accommodate medical gatherings, and the foundation of a library; and the situation will, doubtless, become the rallying point of a variety of professional interests.

FOR a quarter of a century VIRCHOW has occupied a prominent place in German politics and, as an ardent supporter of liberal principles and of constitutional government, he has naturally been in constant opposition to Bismarck. Though not an orator, he is a concise and forcible speaker, and his opinions always command the attention of the House. He has endeared himself to the electors of Berlin by an extraordinary devotion to their interests, and in the City Council he has been for years the moving spirit in various schemes of municipal reform. In the election at present going on, consequent upon dissolution of the Reichstag by Bismarck, one contest will be watched with peculiar interest, Von Moltke against Virchow, absolutism against liberalism—the victorious leader of the greatest of modern armies against one of the most remarkable philosophers which this century has produced. Let us hope that our great teacher will be successful.

A CONTAGIOUS disease hospital is greatly needed in Brooklyn. A bill has been prepared for the State Legislature, which is designed to authorize the construction, within the city, of a hospital building that will be equal to the demands of the time in that direction. The present smallpox hospital is an antiquated structure, unsuitable for any but the pauper class, even if suitable for that. It is beyond the city, in the town of Flatbush. It is under the control of the Charities' administration, not that of the health office. Its record as to the mortality of its inmates at times runs unduly high. This condition of affairs has been pointed out, year after year, by the health authorities, and is about the sole remaining deficiency in the hospital service of the commu-

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nity, but the necessary endowment by the Act of the Legislature has never been secured, although repeatedly applied for.

In a large city there is always a large number of persons, living in hotels and boarding-houses, domestics and others, who, when sick of a contagious malady, should have isolation and hospital treatment; many of them are able and willing to pay for accommodations like that to which they have been accustomed.

THE *Journal d'Accouchements* of January 15th, contains the statistics of the Maternity at Liege for the year 1886. It appears that during the year there were 417 women delivered, not one of whom died, and there were only three who suffered from septic infection, the type in all three being mild. Yet there were several operations done, for example, sixteen applications of the forceps, five internal podalic versions, and in nine women premature labor was induced; there were five cases of placenta prævia, and there were seven women with albuminuria, one of whom had eclampsia. Nevertheless, in 87 per cent. the puerperium was in all respects normal.

Such remarkably favorable results the director, DR. CHARLES, attributes to the faithful use of corrosive sublimate, which he prefers to any other antiseptic. That in only 13 per cent. of 417 women delivered in a maternity there should be a temperature of more than 100⅘°, is certainly extraordinary, and seems at once a strong vindication of antiseptic obstetrics, and an example for other maternities, in which like results may be obtained by the faithful use of like means. The use of corrosive sublimate was begun in the Liege Maternity in May, 1884, and up to January, 1887, there have been 987 women delivered without a single death from septicæmia.

THE late Dr. Dudley, of Brooklyn, left a bequest of $500 to the Faculty of the Long Island College Hospital, to be used in encouraging their students to diligence in special study. The interest of this sum will each year be given to the senior year student who shall present the best thesis based upon some case that has been clinically observed during the year.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, January 12, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. J. D. RUSHMORE, of Brooklyn, read the following paper on

THE TREATMENT OF FRACTURED PATELLA.

The lack of certainty in the results of treatment in cases of fracture of the patella, and the different values that are put by writers on the subject upon the various methods of securing the fulfilment of the general indications in the management of this injury, with a desire to learn what experience has taught the members of this Society in the matter, are the reasons for submitting to the Society this evening for discussion a short paper on the treatment of fracture of the patella, in order that the conclusions drawn from cases that have been under my care may be either confirmed or corrected.

That the discussion may be as practical as possible, and, at the same time, confined within reasonable limits, I submit the question, What is the best treatment in recent cases of simple transverse fracture of the patella? An answer to this question would, doubtless, be, in the main, the same by each of us; yet we would differ as to the relative importance of the obstacles to be overcome, and the methods available for the purpose.

It is important to remember, in the first place, that the patella lies loosely in the tendon, when the limb is lying in a horizontal position with the muscle relaxed; that the bone can be moved by passive motion freely and easily in a lateral and a downward direction; and, not only so, but can be moved upward, as well, a distance of at least a third of an inch, showing that the ligamentum patellæ is not on the stretch normally; and so free is this motion of the bone, that the leg can be flexed on the thigh to an angle posteriorly of about 130 degrees before the patella becomes fixed and invulnerable. And I have never been able to satisfy myself that this motion was any freer in my own limb, with the body and thigh approximated as they necessarily are in the sitting position, than in the limb of another person, lying on a bed in a horizontal position, although theoretically it ought to be so. The quadriceps muscle also has insertion in the capsular ligament, as well as into the tubercle of the tibia, through the ligamentum patellæ. A considerable part of the vasti muscles converge, it is true, to be inserted into the patella; but there is, after all, a certain part of the tendinous tissue directly continuous with the thin, but strong, capsular ligament. A very little dissection will demonstrate this to the eye; and the power to render tense the ligament is shown by traction on the vasti muscles, in the dead subject; and a still better evidence of the force exerted by the vasti muscles in extension of the leg, in the living subject, is manifested by placing a finger on each side of the ligamentum patellæ, and making the effort necessary in extending the leg, when the ligament will be found not only to become tense, but will perceptibly broaden under this effort. This free motion of the patella is as marked, however, when the limb is horizontal as when it is elevated with the idea of approximating the origin and insertion of the muscle. It seems to me that these points are of value in deciding on what measures we shall use in diminishing the amount of separation that exists when the bone is fractured.

The production of a few cases of fracture of the patella in the dead subject, has thrown some light on the conditions essential for separation to take place in the fragments. I have been struck, in the first place, by the difficulty of producing a fracture of this bone by direct violence even with the leg flexed; and when the bone is sawn partly through from within outward, it is still difficult by any force applied on its external surface, to complete the solution of continuity. When the par-

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tial section is made in the opposite direction, from without inward, a slighter force will complete it. When the bone alone is fractured, without any injury to the ligamentous and aponeurotic tissues adjacent, the amount of separation of the fragments is practically nothing; the moderately thin handle of an ordinary scalpel in a post-mortem case can, with difficulty, be inserted flatwise between the fragments. This amount of separation, as we all know, can be increased by cutting the soft tissues at the side of the bone; but even when the capsule was cut to the extent of three inches, laterally, on each side from the edge of the patella, the fragments could not be separated more than three inches and a half, and this required some pressure to be made on the lower fragment; additional separation could be obtained only by further lateral cuts and by vertical incisions upward.

The few attempts that I have made to produce separation of the fragments of fractured patellæ, by injections into the joint, have been almost entirely failures, whether employing air or fluids; for, in order to allow of the separation taking place at all, the aponeurotic tissues of the joint must necessarily be cut more or less, and, although the nozzle of the syringe can be tied in securely, the air or fluid injected, with even slight pressure, finds its way into the areolar tissue outside of the joint cavity, and distends its meshes very rapidly. It seemed to me, however, that there was a slight separation produced by the fluids that remained in the joint, but of this I cannot be sure. Of course, when the bone is broken in the living subject and inflammatory changes obliterate, in part at least, the areolar spaces in the immediate neighborhood of the lacerated capsule, and the fluid accumulates slowly, the problem is somewhat different, and under these circumstances the fluid might act in a way that it would be impossible for it to do in the dead body. I have an impression also, but nothing more, that when the limb was elevated the upper fragment sank a little downward by the weight of the water that remained in the upper part of the synovial sac; I should be unwilling, therefore, to draw any conclusions from my attempts to separate the fragments of broken patellæ by intra-articular injections.

I desire also, in connection with this subject, to describe the post-mortem appearance in two cases of fractured patella, in the Brooklyn Hospital, where death resulted from other causes but within a few days after the production of the fracture. These appearances are, of course, familiar to all of us, but an ocular demonstration of them adds interest to the matter under discussion, and these are the only opportunities that I have had to examine such cases. I can save time and space by speaking of them together.

They were middle-aged men; the fracture was in the right patella; recent in each (within three or four days of death); one known to have been produced by muscular action, and the other probably so, for the patient was intoxicated at the tlme of injury, and knew nothing of the method of production, but there were no marks of bruising in the soft parts over the joint, except a discoloration near the biceps tendon, the skin was somewhat less movable over the fractured, than over the sound patella; there was a separation of the fragments, of about one and a half inches; the circumference of the knee was one inch in the first, and one inch and a quarter in the second case greater than in the other knee; the lower fragment sagged down to a very slight extent; the fracture was a little below the middle of the bone, and transverse, and the edges felt sharp and were clearly defined.

On cutting into the joint a small subcutaneous clot was found in the first case, and a clot as large and as thick as the palm of the hand, in the second case, over the biceps tendon; the areolar tissue over the fragment was stained with blood, and to some extent matted to the tendinous covering of the upper fragment; the joint had been directly opened by a lacerated wound on each side of the patella in each case about two or two and a half inches in length, and in addition, in the second case, there was a vertical rent, partly through the vastus externus and through the synovial membrane, about three inches in length; there was a moderate amount of bloody serum in each joint, and, in the second case, a few small clots; the upper fragment in the second case was more movable upward than in the first case. Much to my surprise, the fractured edges were not sharp and clean-cut as I had supposed from my examination before the joint was opened, but the rent in the periosteum in front was at a lower level than in the bone itself and quite irregularly lacerated, so that it dropped down like an apron in front of the free edge of the upper fragment, partially covering the broken surface. This was true of both cases, and in the first case there were a few particles of bone adherent to the under side of this periosteal flap. The edges of the fracture were covered and concealed by a firm clot that required considerable pressure with the thumb-nail to remove it, and this, with the periosteal flap already spoken of, was undoubtedly the explanation of my inability to obtain crepitus, although the fragments could be brought into contact with each other. I take this peculiarity in the fracture to be unusual, not finding it described; but it is none the less singular that it should have been found in the only cases that I have had an opportunity to examine after death.

To consider briefly the condition that obtains in the living subject, we may start with the statement that the amount of separation of the fragments depends on the amount of laceration of the ligamentous and tendinous tissues in the neighborhood of the patella, not that in every case of extensive laceration there must necessarily be a wide gap, but that in every case of wide separation there must be extensive laceration as an essential condition. The presence of a considerable separation on superficial examination is proof of a considerable laceration, and we can satisfy ourselves of the presence or absence of laceration in cases where the fragments are close together by gentle flexion of the leg in the thigh, when the quadriceps will be excited to contract, and tend to draw up the upper fragment, while the lower fragment will be displaced downward in cases where there is any laceration. If there is little or no separation under these circumstances, we may know that there is little or no laceration. I have occasionally, with the same object in view, made gentle pressure upward and downward on the fragments, but it has been accompanied by rather more pain than by flexion.

If we now come to consider the causes of separation of the fragments, while we admit that the clot interferes temporarily with the close approximation of the frag-

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ments, and the periosteal flap may, in some cases, prove a permanent obstacle to bony union, we must recognize that the real causes of separation are either muscular action or fluid accumulation into the joint, and it seems to me that facts do not warrant us in excluding either one of these causes. It does not seem to me that there is any natural tendency for the muscle to draw the upper fragment upward, inasmuch as the bone is so movable in its tendon; but when fracture takes place, the quadriceps is not excepted in the contraction that takes place in all voluntary muscles after fracture, produced probably either by direct or reflex irritation, contraction that, unless overcome by proper methods, causes a very considerable amount of permanent shortening. There are also frequent contractions of the muscle whenever the patient attempts to sit up, or even to turn, or to raise the hip, etc., for while the muscle is comparatively inactive after fracture, I do not think that it is paralyzed, for with slight stimulus the upper fragment is perceptibly drawn upward by it. Free from any tendency, therefore, to draw the unbroken bone upward, it seems to me when fractures have taken place, that spasmodic action and the usual contraction that occurs after any fracture are causes at work in the production of the gap in fractured patella. And these two kinds of action take place quite as readily with an elevated as with a horizontal limb. It is true, also, that in the few cases of separation of the ligamentum patellæ that I have seen, the bone has been drawn upward, producing a perceptible depression at the point of rupture, even though the joint was not injured, and the amount of fluid in the synovial sac did not seem adequate to account for the displacement.

That the fluid in the joint, however, is a potent element in the production of separation is to my mind quite clear. I saw it very forcibly illustrated in a case of fracture in the Brooklyn Hospital, while interne in that institution. An officer, in helping to transfer an injured patient from a carriage to the hospital entrance, slipped and fell, producing a fracture of the patella. I saw him within five minutes of the receipt of the injury, and found no separation. The fluid accumulated in the joint, and the separation increased as the fluid increased. One would expect that if there were tension of the muscle present, the separation would have taken place immediately; and it might be said that the usual behavior of muscles after fracture would account for the gap as well as the fluid in the joint; but as the fluid was absorbed, the gap diminished, as is not infrequent, and this, I think, could never have been due only to the diminished pressure on the fragments by the fluid in the joint.

Important, therefore, as the fluid in the sac is as a cause of separation of the fragments in the fractured patella, it seems to me a less potent cause than the unusual action of the muscle. For what I saw in a case a few weeks since, is generally true in cases that I have observed: that while the fluid had increased the circumference of the knee by two inches beyond the normal measurement, and aspiration had been suggested, by careful and slow traction on the fragments crepitus could be obtained, although the fragments were quite two inches apart. It must be remembered that the normal capacity of the joint is increased by the rent in the soft tissues, and the opening up to some extent of the areolar spaces in the neighborhood. Of course, it goes without saying, that the inflammatory trouble in the joint enters as a somewhat important element in the treatment of the fracture.

The indications for treatment are plain enough with regard to the coaptation of the fragments; the other indications usually mentioned are the treatment of the inflammation of the joint and its resulting effusion, and the prevention of ankylosis. The first is by all means the most important, and the variety of devices used for the purpose shows, in the main, their inefficiency. It seems to me, in the first place, that elevation of the limb is unnecessary and undesirable for the reasons already given. All those methods for approximating the fragments that make traction on the skin alone, and indirectly only on the bone, are very inefficient in bringing the edges of the fragments together. They have the advantage of early application, of not pressing downward, or tilting the fragments, and thus avoiding the formation of adhesions; but being attached only to the movable skin, they must fulfil very imperfectly this first indication.

Those appliances that are used in which traction is made obliquely backward, and downward, and upward on the fragments, while more powerful and efficient than the former method, have some objections—they cannot be applied until the inflammatory trouble subsides and the fluid is in part at least absorbed, or, if applied earlier, they produce so much pain that the necessary force cannot be used to approximate the fragments, and while pressing on the fragments they at the same time press on the fluid, and in both ways tilt the fragments up; and even when applied late, they press the fragments against the condyles of the femur, and favor the development of adhesions; nor have they a very good control over the upper fragment, for the least involuntary effort at contraction obliterates the depression above the patella, and the bone slides up underneath the dressings. I think the objection made to them by Marinegs has force also, that the constriction of the dressings presses on the nutrient arteries and so interferes with repair.

The most efficient way of approximating the fragments and keeping them in contact, is by traction directly on the bone, and it seems to me that Malgaigne's hooks accomplish this end satisfactorily. They can be applied very early, the traction is made directly on the bone fragments, and is in the long axis of the limb, thus avoiding both tilting and adhesions to the condyles of the femur, the fluid in the joint assisting in lifting the fragments up away from the condyles, the control of the motion in the quadriceps is complete; the fluid does not interfere with their application; they therefore give the best chance for bony or very short ligamentous union. The objections, it seems to me, are not at all sufficient to deter us from using them, in view of the advantages they possess. I have used them in five cases with success, getting, as an immediate result, a shorter bond of union than by any other method, though never union by bone thus far. The pain was not great, the location of the introduction of the points not being specially a sensitive part, and the wound behaving kindly by constant care and cleanliness. The pain of introduction could be diminished by the use of cocaine subcutaneously. The danger of necrosis, of

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erysipelas, of suppuration, etc., is undoubtedly to be taken into account, but must be of very rare occurrence.

The objection that, if their use is not followed by bony union, the patient is worse off than if he had a moderately short ligamentous union, on account of the greater liability of fracture, seems to me not to be a fair one, for the cases of refracture or rupture under these circumstances have occurred soon after the discharge of the patient, while the bond of union was still weak; and we have all seen the same thing take place in cases where the separation was a half inch or more in length, the firmness of the ligamentous band being dependent rather on its age than on its length. The objection that they are "infernal and barbarous" is not sufficiently exact to be answered.

The second indication—the treatment of inflammation and the fluid accumulation—has been fulfilled in may cases by the ordinary rest, evaporating lotions, etc. I never have found it necessary to aspirate the joint, and it must be very seldom necessary to resort to this measure, as the broken fragments can be quite easily approximated with the joint quite distended with fluid; besides, the operation is not entirely free from the dangers of suppuration in the knee-joint.

It seems to me unwise to resort to any active measures in fulfilling the third indication—prevention of ankylosis by flexion ever so gentle, before the eighth week at the earliest, and to do this by the third week as is recommended, is dangerous to the integrity of the ligamentous union, if sufficient force is used to affect at all the adhesions.

I should expect, and have obtained the best results in the treatment of single transverse fracture of the patella by applying a posterior splint with the limb horizontal, and lying in a natural position, but not fully extended; by using Malgaigne's hooks, introduced on the first or second day after the receipt of the fracture; by keeping the dressing on for four weeks, then removing the hooks but not the splint, which has been kept on for four weeks more, the patient being in bed; then the patient allowed to be out of bed with the knee immovable for four weeks longer; by the use of the ordinary remedies for the relief of the inflammatory joint-symptoms in the early stage, but without resort to aspiration; and by avoiding any effort to disturb adhesions until after the end of the third month, and then only by the patient's ordinary use of the joint in walking, etc.

I have purposely omitted saying anything about unusual forms of fracture of the patella, because they are outside the scope of the present inquiry; and have also said nothing of the treatment of old cases with weak knee by wiring because I have no personal experience to relate.

DR. ABBE exhibited a specimen and related the case of a young lady who suffered an oblique fracture of the lower third of the patella, the fragments being widely separated. As she was very anxious to have a sound limb, and was willing to take the risk, he exposed the bone, under strict antiseptic precautions, and found a fracture, with two inches separation, the fractured surface of each fragment being covered by a dense layer of torn white fibrous tissue. This was the normal prepatellar tissue torn like two fringes, and so disposed over the bone that osseous union would have been impossible, even if coaptation had been obtained. These fringes were cut away. The patella was wired with silver, the joint irrigated with sublimate, 1 : 5000, and drained laterally. Primary union, without joint disturbance, followed. Three months have elapsed, and the patella is one solid bone. The patient is walking with a cane, and without splints. Fibrous ankylosis exists, which bids fair to yield in the course of time, and seems largely extracapsular, but at present allows flexion of about only ten degrees. The patient is greatly pleased.

He thought there was always some risk of ankylosis following this method, but that with improved technique this would be done away with. One step toward improvement would be in leaving a drainage tube in the joint interior as short a time as possible, and perhaps do away with it altogether. In the worst event he believed a partly ankylosed joint with solid patella, better than a weak unreliable knee with gaping fragments. If a joint suppurated, he believed it was always due to contamination from defective antisepsis.

DR. LANGE said that he had heard, with much interest, the reference to the fibrous tissue that was found covering the ends of the fragments, since he had noticed the same appearance. He had performed the operation of wiring the patella in five cases, and believed that it is safe and reliable, provided the surgeon exercise the proper care. He had so far operated on special indications only. The first patient was a stewardess on board a steamer, who wished particularly to have a reliable limb in order to be able to go up and down the steep ship-stairs, as her living depended on this. The second patient was a lady, who, for many years before, had had an amputation of the thigh on the opposite side. The third one had fractured both patellæ several years before; one was not operated upon. There existed a very wide gap, but the limb was partially useful. On the side of the operation the fracture had been of more recent occurrence, and though the distance between the fragments was considerable, the latter could, with some difficulty, be approximated.

In all of these cases, two of which were operated upon within eight or ten days after the accident, complete recovery took place, and the limbs have become quite useful.

The fourth case was that of a vigorous man, who, after a fracture near the attachment of the ligamentum patellæ, had lost all control over the extension of his leg, and was obliged to depend upon an apparatus. There existed a wide diastasis of the fragments, which could be brought in contact only after the quadriceps tendon had been partially divided at several points, at some distance higher up, between the muscular bellies of the vastus. The capsule was also incised freely. The fragments were forcibly approximated by coarse silk ligatures. This man had a stiff, but useful, limb. It was impossible to say whether the slight motion that was present at first, had improved or not. The shape of the patella and its lower surface had to be smoothed. Probably a comminuted fracture originally occurred.

The fifth case was not equally favorable. A strong man, aged about thirty, fond of athletics, had fractured his patella near the upper margin. There existed extensive extravasation and rupture of the capsule. The operation was done on the third day after the injury,

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the patient himself being anxious to secure the best possible result. Borosalicylic solution was used as an antiseptic during the operation. The patient did not behave as quietly as he might after the operation, and made very unwise movements with his limb. Suppuration set in, and the limb became quite stiff, the semilunar cartilages having been detached by necrosis. Probably it would have been wiser to delay the operation until absorption of the extensive extravasation had taken place. In all of the cases, except one, strong silkworm gut was used to suture the fragments.

DR. HALL stated that he had wired the fragments of the patella in two cases of recent fracture. In both instances he had found coagulated blood between the edges, the extravasation in one case being very extensive and having ruptured into one of the prepatellar bursæ, so that the patella could with difficulty be felt. Aspiration was unsuccessful as the blood was coagulated, and fearing much stiffness on account of the hæmarthrosis, suturing was resorted to. Bony union was obtained in both instances. Silver wire of one-sixteenth of an inch was used. The special interest of the cases lay in the fact that there was no interposition of fibrous tissue, the fragments being separated to the extent of half an inch by a firm blood-clot; particular attention was called to this, as the other condition had been described as invariable, and as being the cause of non-union. In a case of old fracture recently seen, only the upper corner of the bone was broken off, with practically no separation, and no interference with the insertion of the quadratus femoris into the larger fragment, so that the patient had perfect use of the leg, although union did not occur.

DR. SANDS asked concerning the amount of motion in the injured limbs.

DR. HALL replied that one of the patients could flex the limb only about fifteen degrees when the dressings were removed, but three or four weeks later, when last seen, had motion almost to a right angle, and was improving daily. No passive motion had been employed. In the other case flexion was limited to about twelve degrees, but the range of motion would undoubtedly be greater in the course of three or four months.

DR. PETERS asked how long the dressings were retained, to which the speaker replied, for six or seven weeks.

DR. LANGE remarked that he had obtained good results with sutures of coarse silkworm gut.

DR. SANDS thought that all surgeons had found the treatment of fractured patella unsatisfactory, it being impossible to maintain perfect apposition of the fragments. Treves had recently recommended anew the use of Malgaigne's hooks, piercing the joint and embedding them firmly in the fragments, due antiseptic precautions being employed. The speaker rather liked this treatment. After all, it is not so important to obtain bony union, as the patients can get on very well without it. However, the best results will doubtless be obtained when surgeons are able to open the joint safely every time, and to wire the fragments. It should be remembered that this is yet a serious operation, which is sometimes followed by suppuration, ankylosis, or even by death. He had found that patients rarely wished to run any risk, when the nature of the operation was frankly related to them. Even when successful the operation often leaves some stiffness of the joint, with diminished flexion, on account of the thickening which attends the healing process. Dr. Sands confessed that he, at present, occupied a decidedly conservative position with regard to the operation and would be unwilling to have it performed upon himself. But he was confident that the dangers now attending it will be finally overcome.

DR. WEIR explained that Mr. Treves's method of introducing the hooks is quite simple. He relied upon the maintenance of perfect cleanliness by means of water.

DR. HALL believed that a Philadelphia surgeon had written a paper some years before, in which he reported about fifty cases of fractured patella, in the treatment of which Malgaigne's hooks had been used with good results.

THE PRESIDENT thought that the radical operation should be more carefully studied before it is generally advised, since its remote consequences are not always satisfactory. He had observed a case in which bony union had been obtained by wiring the fragments, but three months after they separated, on the application of slight force; in another instance suppuration occurred, and motion was subsequently limited to fifteen degrees. Another case of suppuration was reported at Bellevue Hospital.

DR. POORE asked if it was not true that the joint is frequently stiff after the operation.

DR. LANGE replied that this depended to a great extent upon the after-treatment. In three of his cases there was perfect mobility, while in the others motion was limited. The condition doubtless improves in time under the influence of massage and passive motion.

CORRESPONDENCE.

CHLOROFORM AND ETHER DEATHS.

AN article published by me in THE MEDICAL NEWS for January 8 was intended simply to put upon record a clinical experience, which seemed to me important as demonstrating that danger attended the administration of an anæsthetic mixture generally regarded as safe. Among the remarks appended to my account of that case was one calling in question the statement made by Dr. J. C. Reeve, that ether "in the human subject may cause death as suddenly, as unexpectedly, and in the identical manner that chloroform does." Dr. Reeve, in an article in THE NEWS for January 22, asserts the accuracy of his statement, and adduces a number of instances in support of it.

I beg to disclaim any intentional discourtesy to Dr. Reeve in my expression of dissent from his opinion; nor did I mean to throw down a challenge upon the subject. But I feel constrained to defend my own view, that there is a marked difference between ether deaths and chloroform deaths; and shall call Dr. Reeve's own cases in evidence.

Let me first very briefly review these:

In Case I. there was "an extremely softened spleen."

Case II., a woman, "aged fifty-five, in very poor health."

As to Case IV., Dr. Reeve says "the report of the autopsy makes no mention of" blood in the trachea. Certainly not, for in the account (in the *Boston Med.*

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and Surg. Journal for November, 1875, taken from the *N. Y. Herald*) there is no mention of any autopsy.

In Case V. there were "Bright's disease, chronic pleuritis, and embolism of the pulmonary artery."

Case VI. (Lowe's case). As to this, I must speak a little more fully. Dr. Reeve says of it: "The report I have says 'there were some nodules of cancer in the liver and lungs.'" My own quotation was made from Mr. Lowe's original statement in the *British Medical Journal*—"studded throughout both lungs, but more particularly toward the base, were numerous small, hard, cancerous nodules."

Case VII. was that of a "male, aged sixty-nine, much exhausted; strangulated hernia; heart flabby, left ventricle not contracted, lungs emphysematous, and bronchi filled with purulent mucus."

In Case VIII., that of a man, aged sixty-two, addicted to drink, there were found "pleuritic adhesions, atheromatous aortic valves, congested liver and kidneys, the latter studded with cysts."

Case IX. was that of "a feeble old man of sixty-seven, with strangulated hernia." It seems to me that this was a case of "asphyxia," as stated, by the "copious bronchial secretion" which "kept filling the patient's mouth." Such drowning is sometimes met with in various thoracic affections of old people.

In Case XI., that of a man, aged sixty-two, "the lungs were emphysematous and congested, and there was bronchitis (?). The heart was flaccid and fatty, with adherent pericardium."

In Case XIII., that of a man, aged fifty, "suffering from severe inflammation of the bowels, due to obstruction," there was found at the post-mortem "considerable purulent effusion in the peritoneal cavity; at the lower part of the descending colon was a malignant mass of the size of a small cocoanut, blocking the canal. In the right ventricle of the heart was a fibrinous clot attached to the tricuspid valve."

The other cases are all deficient, as indeed Case IX. was also, in statement of post-mortem appearances. But in Case XII., the only one in which a young person was the victim, it is stated that the girl, aged ten, was "much emaciated, and looking very ill; to be sounded for a calculus."

Now, I would ask to contrast with this series of cases a few only of those of chloroform death which have met my eye in the hasty glance over some medical journals which the pressure of other work has allowed me to take.

I. A stout young man operated on by Dunsmure for stricture of the urethra. With the exception of a few old pleuritic adhesions, every organ presented the most exquisite specimen of health. (*Med. Times and Gazette*, October 15, 1853.)

II. Young woman, chloroformed for an amputation of the great toe. All the organs found perfectly healthy. (*New Orleans Med. and Surg. Journal*, January, 1854.)

III. Richard's case of uterine polypus. Nothing of interest observed at the post-mortem. (*Lancet*, April 29, 1854.)

IV. Man, aged forty; eyeball excised at the Royal Ophthalmic Hospital, London. No cause of death discovered at the autopsy. (*Med. Times and Gazette*, April 14, 1855.)

V. Porter and Brewer's case; trooper, with dislocation of thumb. Nothing detected at the post-mortem except "congestion of the scalp and head." (*Maryland and Virginia Med. Journal*, February, 1861.)

VI. Lane's case; boy, aged eight, to be operated on for the scar of a burn. All the organs found healthy. (*Med. Times and Gazette*, November 16, 1861.)

VII. Healthy looking man, aged thirty-three, with a sloughing sore on the penis to be cauterized. No sign of disease discovered at the autopsy. (*Lancet*, November 19, 1864.)

VIII. My own case. Man, chloroformed for the second time for reamputation of leg. No visceral lesions sufficient to account for death. Heart and lungs perfectly healthy. (*Am. Journal of the Med. Sciences*, January, 1865.)

IX. Woman, who had previously taken chloroform; had to have a tooth drawn. At the autopsy all the organs were found perfectly healthy. (*Med. News and Library*, June, 1866.)

X. Le Fort's case. Man, aged thirty, with anal fissure. Nothing noted at the post-mortem but two small pulmonary cavities. (*Med. News and Library*, June, 1873.)

XI. Brakeman on a railroad, chloroformed for the extraction of a tooth. No disease found. (*Boston Med. and Surg. Journal*, October 1, 1874.)

XII. Gant's case. Boy, aged fourteen, with suspected dislocation of the hip. All the organs sound. (*Brit. Med. Journal*, December 19, 1874.)

XIII. Man, aged fifty-six, operated on for fistula and hemorrhoids. No organic disease discoverable. (*Brit. Med. Journal*, March 17, 1877.)

XIV. A young lady who had had five teeth extracted under chloroform, was recovering, when more chloroform was given, and she died. A post-mortem examination showed all the organs to be healthy. (*Med. News and Library*, March, 1878.)

The above cases are only selected as having distinct statements in regard to the post-mortem appearances; otherwise they are taken at random. By reason of their incompleteness in this respect, I have not noted here such cases as one mentioned by Anderson (*Cincinnati Clinic*, March 31, 1877), in which a strong, healthy country boy, who had taken chloroform a year previously, inhaled it (for some purpose not stated) and was recovering, when a few more whiffs were given him with fatal effect; nor another recorded in the *Association Journal* for May 26, 1854, where a girl of thirteen, of strong constitution, was chloroformed for the removal of a lipoma of the back, fell forward, and died in a few minutes. Nor have I regarded any cases of self-administration. Yet, so far as my knowledge goes, all these cases, like those above adduced by me, are without parallel in the history of anæsthesia by sulphuric ether.

I am not aware that I have ever denied the occurrence of deaths during the administration of ether, or as a result of it; although young men do sometimes make assertions which more mature experience leads them to correct or modify. But with nearly all the cases brought forward by Dr. Reeve I had been familiar, as well as with some others not mentioned by him; notably that of Dr. Dandridge, of Cincinnati, reported in 1880, and that of Dr. Roberts, of Philadelphia, of about the same date. And in every one of these cases, so far as I know them, in which an autopsy was made, there was

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discovered serious organic disease, perhaps not in itself lethal, but too grave to be overlooked as contributory to the fatal result. Chloroform needs no such assistance.

Upon the production of one case in which ether has proved fatal to a healthy young person, inhaling it for a slight operation, and in which an autopsy shows no organic disease or lesion, I will at once admit that my objection to Dr. Reeve's statement falls to the ground, and that ether does kill in the identical manner that chloroform does.

In conclusion, I would quote a passage which by the merest accident caught my eye a day or two since. It occurs in a review of Valette's "Clinique Chirurgicale de l'Hôtel-Dieu de Lyon," in the *British and Foreign Medico-Chirurgical Review* for January, 1876:

"One lecture is devoted to a comparison of the relative safety of ether and chloroform, and M. Valette pronounces unhesitatingly in favor of the former. He does not deny that deaths occasionally occur under the influence of ether; but in the cases he has been able to collect, there is a remarkable difference between these and the similar accidents from chloroform. A large number of the fatal cases under chloroform have occurred when the anæsthetic was being administered to a patient apparently in good health, and suffering from some trivial local malady. On the other hand, those occurring under ether have always been in cases of the gravest character, and in which the patient was either exhausted by previous disease, or suffering from the shock of some severe injury. Again, he points out that death, when resulting from the effects of ether, has always been preceded by warning symptoms; whereas with chloroform it has often been sudden, and utterly without warning of any kind."

JOHN H. PACKARD, M.D.,
Surgeon to the Pennsylvania Hospital.

PHILADELPHIA, January 31, 1887.

NEWS ITEMS.

DISEASE AMONG THE INDIANS.—DR. WASHINGTON MATTHEWS, surgeon in the United States Army, has made a valuable contribution on the causes which are at work in carrying off the Indians of our country. One of the most important of these he finds to be consumption. From the census of 1880 we learn that, while the death-rate among Europeans is 17.74 per thousand, and that among Africans 17.28, the rate among the Indians is no less than 23.6. In diarrhœal diseases the Indian death-rate is not greatly in excess of that of the other classes. Measles gives a mortality of 61.78 per thousand. But it is under the head of consumption that the difference between the Indians and the blacks is most conspicuous; the rate among the former being 286 as compared with 186 among the latter, while among the whites it is but 166 in the thousand. Dr. Matthews finds that, where the Indians have been longest under civilizing influences, the consumption rate is the highest; meaning by the term "consumption-rate" the number of deaths from consumption in a thousand deaths from all known causes. Thus the rate among reservation Indians in Nevada is 45; in Dakota, 200; in Michigan, 333; and in New York, 625.

A PASTEUR LABORATORY AT NAPLES.—The Sanitary Commission at Naples has determined, upon the recommendation of Semmola, to erect a laboratory for the practice of Pasteur's method of inoculation. The circular which announces its erection, urges the need of further experimentation with this method, to enable an accurate estimate to be made of its worth.

INSANE DEPARTMENT OF THE PHILADELPHIA HOSPITAL.—Dr. A. J. Smith has been elected first assistant in the insane department of the Philadelphia Hospital, to succeed Dr. J. C. DaCosta, who has been called to a similar position in the Pennsylvania Hospital for the Insane.

FEMALE MEDICAL STUDENTS IN FRANCE.—The medical faculty of France has this year 108 female students—namely, 83 Russian, 11 English, 7 French, 3 American, 2 Austrian, 1 Turk, and 1 Roumanian.

DEATH FROM CHLOROFORM.—The death of a man, aged fifty-four, while under the influence of chloroform, administered for the purpose of performing an operation on a long-standing disease, recently occurred at Bradford, England. The evidence given at the inquest showed that every precaution was taken, and that an examination of the heart before the administration revealed no evidence of disease. An ounce of brandy was administered three-quarters of an hour before the administration of the chloroform. Immediately on the completion of the operation the heart's action was found to have ceased. It was stated that the deceased had successfully undergone a similar operation twenty-five years before.—*British Medical Journal*, Jan. 15, 1887.

TOOTH POWDERS.—According to *The Lancet* precipitated chalk forms the best basis for a tooth powder, to the base of which may be added pulv. saponis and ol. eucalypt. a drachm of each; and, if there is no objection to the taste, half a drachm of carbolic acid.

NOTES AND QUERIES.

SANDS ON USE OF PASSIVE MOTION.

To the Editor of THE MEDICAL NEWS,

SIR: The article written by me "On the Use and the Abuse of Passive Motion," contains, as published in THE MEDICAL NEWS of January 22d, numerous errors, for which I am not responsible. In transmitting the proceedings for publication, the Society's Recorder sent my original manuscript to the *New York Medical Journal*, and forwarded to THE MEDICAL NEWS a type-written copy which was not submitted to me for correction, and contains a number of errors which did not exist in the original.

Please to do me the favor of publishing this letter in the next number of your journal, and oblige,

Yours very respectfully,
H. B. SANDS.

NEW YORK, January 23, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 25 TO JANUARY 31, 1887.

MORRIS, EDWARD R., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, to take effect about March 10, 1887, with permission to apply for an extension of twenty days.—*S. O. 6, Division of the Pacific*, January 19, 1887.

CLENDENIN, PAUL, *First Lieutenant and Assistant Surgeon.*—Ordered for duty as Post Surgeon at Camp Pena, Colorado, Texas.—*S. O. 14, Department of Texas*, January 26, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, FEBRUARY 12, 1887. No. 7.

ORIGINAL LECTURES.

THE MIDDLETON GOLDSMITH LECTURES.

Delivered under the Direction of the New York Pathological Society.

BY M. ALLEN STARR, M.D., PH.D.,

PROFESSOR OF NERVOUS DISEASES IN NEW YORK POLYCLINIC.

LECTURE II.

January 28, 1887.

MULTIPLE NEURITIS, AND ITS RELATION TO CERTAIN PERIPHERAL NEUROSES.

IN the last lecture we studied the history of multiple neuritis, and incidentally obtained some clinical pictures of various forms of this disease. We also discussed its pathology and its etiology. This evening we must look more carefully at the symptoms presenting themselves in the different varieties of the affection.

An etiological classification of the cases of multiple neuritis appears to be the one most useful to the clinical observer; and as the forms vary considerably in their symptoms, we shall perhaps arrive at a more definite knowledge of the disease if we consider each of the classes separately. It is possible to distinguish—

1. Toxic cases, due to poisoning by alcohol, arsenic, lead, and bisulphide of carbon.

2. Infectious cases, due to the direct action upon the nervous system of the infectious agents producing diphtheria, variola, typhoid and typhus fevers, severe malarial fever, and tuberculosis; to which must be added the agent causing the epidemic form of neuritis known as kakke or beri-beri.

3. Spontaneous cases, due to uncertain causes, among which cold, and exposure to damp and wet, and to overexertion, may find a place.

1. *Toxic Cases.*—(*a*) *Multiple neuritis, due to poisoning by alcohol.* While alcoholic paralysis has been universally recognized for many years, it is only within a short time that the symptoms and pathology have been brought into a logical connection. It is to Moeli,[1] of Berlin, and Dreschfeld,[2] of Manchester, England, that we owe the most important recent contributions to the knowledge of this form of neuritis, though the work of Henry Hun,[3] of Albany, and of Bernhardt,[4] of Berlin, cannot be passed over without recognition.

It will be remembered that among the first cases of multiple neuritis in which an autopsy was made, viz., those of Lancereaux,[5] the disease was traced to alcoholism. Lancereaux deserves the credit of demonstrating the pathological basis of alcoholic paralysis, for the descriptions of its symptoms previously given by Jackson and Hun were not accompanied by post-mortem records. But Lancereaux's observations were for many years overlooked by physicians outside of France; and in England, where the disease is well known, it was ascribed, as lately as 1883, to a spinal lesion.[1] But in 1884 Dreschfeld combated this theory, and called attention to its true pathology, showing that cases formerly supposed to be spinal paralysis were really due to an affection of the peripheral nerves.

All observers have emphasized the fact already noted by Jackson, that the disease is especially frequent among females. Males are not, of course, exempt from alcoholic paralysis, but in them the poison seems more liable to manifest itself by acute cerebral symptoms than by those of disease of the peripheral nerves. It is especially frequent among those persons in the higher classes whose nervous organism is highly developed, and who lead a comparatively inactive life. It seems not at all improbable that sedentary habits predispose an alcoholic drinker to this disease, and hence active workers, male or female, though taking an equally large amount of liquor as the luxurious drinker, escape. All alcoholic drinks are not equally prone to produce paralysis. It is the spirituous liquors—brandy, whiskey, gin, and rum, and the liqueurs, absinthe, vermouthe, etc.—which are dangerous. And it is only after these drinks have been consumed in large amounts and for a considerable length of time that neuritis develops. Its onset, though often apparently very sudden, is usually gradual. For months the patient has suffered from chronic gastritis, insomnia, general neuralgic pains, or severe pains in the joints or limbs, and from tremor and a certain feebleness in movement, when all at once her legs give way beneath her, and after the sudden fall she finds herself unable to rise. Thus a patient of mine, after a year of such premonitory symptoms, was seized with paralysis quite unexpectedly when getting out of bed in the night. This paralysis soon becomes complete in the feet and legs below the knees, and may advance up the thigh. It next attacks the hands and forearms, and while in all extremities it is often greater in the extensors than in the flexors, in some cases both groups of muscles become entirely helpless. This has been the case in three patients under my care. The paralyzed muscles are flabby, and soon become atrophied, they have no excitability to mechanical irritation, and the tendon reflexes are lost. They fail to react to a faradic current in the majority of cases, though occasionally a very strong current may produce a response. When galvanism is applied the reaction of degeneration is found to be present. No stimulus can be given to the muscle by sending a current through its nerve, and the positive pole produces more marked contractions with an equal current than the negative

[1] Moeli: Charité Annalen, 1884.
[2] Brain, Nos. 26 and 32.
[3] Amer. Journ. Med. Sci., April, 1885.
[4] Zeitsch. f. klin. Med., 1886.
[5] Gaz. Hebdom., 1881.

[1] Wilks: Dis. of Nerv. System, p. 272.

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pole when placed on the muscle, and then it is only a slow or vermiform movement, not the quick jerk of health. It is also found that strong galvanic currents have to be used to produce any contraction at all. The paralysis of the muscles may advance rapidly in severe cases, involving the motor cranial nerves, the muscles of the trunk, and, lastly, the diaphragm, thus causing death. More frequently, however, it is arrested when only the distal parts of the extremities are involved, and then it gradually subsides until recovery is complete. The position assumed by the paralyzed limbs has been thought to be almost characteristic. There is dropped wrist quite similar to that seen in lead-palsy, and also dropped foot, due to the falling forward of the foot from its own weight, since the anterior tibial muscles are weak. This deformity is increased by the fact that the patients lie in a recumbent posture with the feet extended, and when the flexors of the toes are but slightly affected, as sometimes is the case, their unopposed contraction serves to exaggerate the malposition. If there is entire paraplegia the legs and thighs may both be extremely flexed, so that the heels touch the buttocks, but this is exceptional. While the dropped wrist is the usual deformity of the hands, cases are recorded in which the paralysis was limited to single muscles and to muscles supplied by single nerves. Thus, Lilienfeld describes a weakness of the extensors of the thumb, fourth and fifth fingers, and Leudet mentions a paralysis of the ulnar nerve. In one case of my own the main *en griffe* was the deformity noticed, indicating a weakness of the interossei only. Such cases as those of Hun,[1] where a facial paralysis was seen, or of Lilienfeld,[2] where double abducens paralysis occurred, are certainly rare, and still more so are those in which irregular rapid pulse has been ascribed to an affection of the pneumogastric.

To the physician these motor symptoms, and the œdema, occasional lividity, profuse sweating, and glossy skin, so often associated with them, are very noticeable. But the patient suffers far more from the disturbance of sensation. In the description of Jackson, the pains were graphically portrayed. They are the cause of terrible agony, sufficient to produce insomnia, and wearing seriously upon the endurance of the sufferer.

In addition to pain, hyperæsthesia is not infrequently observed. It is usually quite extensive in the legs, though in cases of poisoning by absinthe it has been limited to the soles of the feet. The muscles, as well as the skin, are sensitive to handling and to pressure, and marked tenderness in the course of the nerves is always elicited by examination. In one of my cases soon after the onset, the patient could not bear to be touched or moved, though perfectly unable to help herself. Charcot goes so far as to say that muscular sensitiveness associated with flaccid paralysis is pathognomonic of alcoholism.

Paræsthesiæ are always complained of. Numbness, tingling, and formication are frequent. In one of my patients the sensation was as if heavy bracelets were around the wrists, and as if very tight drawers were on the legs. At other times she felt as if the limbs were swollen, and as if the skin was about to burst. Such sensations may cease as the case increases in severity, and give place to a total lack of sensation in the parts. They return, however, with advancing recovery, and are among the last symptoms to disappear.

Abolition of tactile sense, and to some degree of muscular sense, is the rule after the paralysis is developed. Temperature-sense and the perception of pain are never wholly lost, but may be delayed in transmission. The anæsthesia may be limited to irregular areas, and may be only in the cutaneous distribution of one nerve, but is usually found over the entire distal part of the paralyzed limb. Usually the cutaneous reflexes are preserved. The loss of muscular sense is, in some cases, so marked a symptom, and one of such early occurrence, that Dreschfeld distinguishes a class of cases which he terms ataxic rather than paralytic. And this distinction is perfectly justifiable, for in many cases it is the incoördination which attracts the attention of both the patient and the physician. It is this class of alcoholic cases which may be mistaken for locomotor ataxia, and which have been named by French writers pseudo-tabes alcoolique.[1] But ataxia is not exclusively limited to this class of cases. It may be present in some degree in cases of paralysis, and during recovery from paralysis the deficiency in coördinating power may become evident, and appear to retard the progress of the case. Nor are the cases of ataxia, on the other hand, free from paralysis.

And this fact is proven by the observations of Westphal[2] and Charcot. For by contrasting the walk of a true ataxic patient with that of an ataxic alcoholic patient they have each discovered several points of difference. The ataxic patient throws the foot forward with undue violence, the toe lifted high in air, and brings first the heel down forcibly and then the entire foot. The alcoholic, however, has some weakness in the muscles of extension and cannot raise the toe. He, therefore, lifts the foot high in order to step over the hanging toe and not to trip on it, but the motion is made without undue force. He then throws the foot forward in order to throw the toes up and get them out of the way as he brings the foot down to the floor. The motion is awkward and has an appearance of one stepping over high obstacles, but it is a voluntary attempt to remedy a deficient power—not the involuntary awkwardness of a man unable to manage strong muscles. There may be in both patients some tottering, and swaying when standing with the eyes closed, the so-called Romberg symptom, is common to both locomotor ataxia and alcoholic neuritis. Dejerine describes the following cases, in which the symptoms resembled that of tabes.

Observation VIII.—Male, aged forty-two, a hard drinker, complained for four months of shooting pains in the legs, and noticed a gradually increasing difficulty in walking, which was worse in the dark. He also had found his feet swollen at times, and had some difficulty

[1] Hun: Loc. cit.

[2] Lilienfeld: Berl Gesellsch. f. Psych. u. Nervenkrankheiten, July 15, 1885. See, also, Richard Schultz: Neurol. Centralbl., Nos. 19, 20, and 21, 1885.

[1] Dejerine: Arch. de Phys., 1884.

[2] Westphal: Ueber eine bei chronischen Alcoholisten beobachtete Form von Gehstörungen; Charité Annalen, 1879. Charcot: Leçons, Progrès Médicale, 1886.

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in micturition. Examination on admission to the hospital showed a high grade of ataxia in walking, Romberg's symptom, loss of tendon reflexes, anæsthesia almost total of entire body, considerable analgesia with retardation of sensations of pain, temperature sense being preserved, and loss of muscular sense in the legs. The muscles were slightly feeble and a little diminished in size. It could hardly be said that there was paralysis or atrophy. The diagnosis made was locomotor ataxia of an unusual type. The onset was so rapid, the anæsthesia so extensive and severe, the paresis of the limbs, though slight, so evident, that it differed from a typical tabes. But no other diagnosis could be made from the symptoms. The patient died of chronic nephritis six weeks after admission. The autopsy showed the spinal cord to be normal. But in the cutaneous and to a less degree in the intramuscular branches of the nerve, as well as in the distal parts of the nerve trunks, a high grade of parenchymatous neuritis was found. The nerve tubes had lost their double contour, the myelin sheath was segmented, the protoplasm was increased, the nuclei multiplied. The nerve-trunks on the plexuses, and the nerve-roots were normal. The nerves of the legs were more deeply involved than those of the arms.[1]

The second case, in a female forty-nine years of age, presented almost identical symptoms and lesions.

The special senses are occasionally affected in cases of alcoholic paralysis. Amblyopia has been observed, and also defective vision from central scotoma. The field of color-vision is often contracted even when sight is preserved. There may develop a true optic neuritis, evident to the ophthalmoscope, and this may go on to optic nerve atrophy.[2] Inequality of the pupils is frequently seen, as is also a moderate contraction of the pupil. All these eye symptoms, occurring as they may in a case of the ataxic variety, make a differential diagnosis from locomotor ataxia difficult. The Argyle Robertson pupil (which contracts in accommodation but not to light) has not been seen in alcoholic cases, while it is an early symptom of tabes.

One feature of alcoholic paralysis remains to be noticed, viz., the cerebral symptoms. These are hardly ever wanting. There is at first the excitement rising to the degree of active delirium, with illusions and hallucinations of the various senses; there is the insomnia which so soon exhausts the patient if it is not remedied; there is the loss of memory, especially of recent occurrences; and the lack of power of attention or concentration which prevents intelligent conversation. The indifference to bodily wants may be so great as to lead to uncleanliness, and since paralysis of the sphincter is the rare exception, incontinence is usually to be ascribed to the mental state It is useless to attempt to get any reliable history of their illness from these patients. Their statements are unintelligible or unreliable. And here it may be well to notice a symptom first remarked by Strümpell.[3] These patients will relate occurrences as having happened recently with much elaboration of detail, when as a fact the story is entirely a product of their imagination. Thus one patient of my own who had been confined to bed for many days, told me one afternoon that she had been out to see an eminent gynecologist during the morning; had gone to his office and waited for him several hours; had seen other patients there, and finally had been told by the doctor's brother that he would not return in time to see her, so she had come home again. And this was all related in apparent good faith, so that I have no doubt that she believed that what she said had occurred. With the possibility of such delusions in view, it is evident that the statements of these patients cannot be accepted regarding anything, especially as to their own history.

One patient, who was admitted to Bellevue Hospital during my service there, told me a different history of her case every day for a week, and it was only by interviewing her friends that the correct account was obtained.

The course of alcoholic neuritis is quite uniform. After a sudden onset, the symptoms suddenly advance to a high degree, which is reached in a week or two from the beginning of the paralysis or ataxia. Then they may increase further, and cause death by respiratory paralysis. Usually, they remain stationary for a time, and then gradually subside, the entire duration being from two months to a year. Individual muscles regain their power, tone, firmness, and electrical reaction slowly, and during recovery the tingling and numbness in hands and feet may be severe. In a few cases the muscles become contractured, and permanent deformities, only to be overcome by long-continued massage, or by operative measures, develop. When the fact is considered that those who recover rapidly, rarely fail to resort again at once to the use of stimulants, and thus expose themselves to the danger of a relapse, the ultimate fate of the chronic cases is hardly more serious than that of those who get well.

As examples of the paralytic form the following cases are cited:

Observation IX.—A baker, aged forty-seven, phthisical, a moderate drinker, had suffered for several years from numbness of the hands and legs; and for a year before the acute invasion of his illness, from a slight weakness of the legs and uncertainty of motion in walking. This weakness became much worse during the spring of 1881, so that all summer he was confined to his room, though he managed to walk a little. In November, after an uneasy night, during which he was delirious, it was found that he could not move his legs at all, and that his arms were powerless. He was brought to the hospital November 25th, when a total paralysis, with atrophy and loss of tendon reflexes, was discovered in legs and arms, as well as slight disturbances of sensibility in the legs, consisting of a delayed sensation of pain. His mental condition was a weak one, but he answered questions rationally. The face was in no way affected. No involuntary evacuations. Electric examination showed a great diminution, and in many muscles total loss, of faradic excitability when the current was applied both to nerve and to muscle. With the galvanic current few contractions could be elicited by exciting the nerves, and by exciting the muscles the slow contractions characteristic of RD, as well as the predominance of AnCC over KCC, were

[1] Dejerine: Arch. de Phys. Normale, 1884. For other ataxic cases, see Dreschfeld, loc. cit.

[2] Brissaud: Des paralysies toxiques, p. 31. Paris, 1886.

[3] Strümpell, Arch. f. Psych. 1883, xiv. 339.

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present.[1] The mechanical excitability of the muscles was not impaired. There were no pains. During the following three months there was little change in the condition, except that his mind was not clear, and that he told extraordinary stories of having been out walking, of having made purchases, etc., when, in fact, he could not move from the bed.

His pulse became more rapid during this time, averaging 120 per minute. In February, 1882, the legs had become œdematous, and there was marked analgesia in them, except on the soles of the feet, which were hyperalgesic; sensations of touch were, however, readily perceived. Though he had a sanguineous dysentery, there was no incontinence. On the 12th there developed suddenly great difficulty in respiration, due to suspension of all diaphragmatic breathing, and the next day he died. An ophthalmoscopic examination on the last day showed an atrophy of both optic nerves on the outer side of the eyes.

Autopsy: Brain and cord normal. No macroscopic changes in the nerves. A microscopic examination, however, showed the presence of a very high degree of degeneration and degenerative atrophy in the nerve-fibres. The myelin had divided in large and small drops containing fat-granules; the degenerated mass within the Schwann sheath, consisting of myelin and axis-cylinder, was seen in various stages of absorption, and in spots the empty Schwann sheath alone remained. No inflammatory exudation was present, and the endoneurium and perineurium appeared to be normal. The muscles showed evidence of degenerative atrophy. The anterior nerve-roots were normal.[2]

The lesion here resembled exactly that in Joffroy's case, already cited. It was similar in the following case:

Observation X.—Female, who had recently indulged in alcoholic excesses and had suffered from gastritis and delirium tremens; complained for some days of pain in her legs and numbness in hands and forearms. When seen by Dr. Webber the pains in the limbs were severe, and she could not turn in bed without help, her knees were drawn up, and attempts to straighten them caused pain. There was loss of power in extensors of the wrist and hands, and the fingers could not be shut perfectly. There was general tenderness over the muscles of the extremities, and pressure along the nerves was very painful. Her throat was sore, but she did not have diphtheria. She spoke in a whisper and with difficulty. Three days later anæsthesia of the feet and hands appeared, and the tendon reflexes were lost. The pain became so severe that morphine was given to control it. The paralysis became more complete, the anæsthesia increased, incontinence of urine and feces developed, she appeared to be very feeble, and respiration became wholly thoracic. Seventeen days after admission to the hospital she died.

Autopsy showed brain and cord normal. The chief nerve-trunks of the extremities, and the phrenic and pneumogastric were in a condition of degeneration, the distal ends being affected to a greater degree than the central portions. "The simplest change found was in the medullary sheath at Ranvier's constrictions, without break in the axis-cylinder, and without increase of nuclei." In some nerves extensive degeneration was found, the medullary sheath being broken up into fatty fragments, the axis-cylinder discontinuous or destroyed, and the number of nuclei increased. In the fibres which were most altered was found an increase of nuclei; and apparently small masses of protoplasm, not nuclei, were tinted in the midst of the granular débris. Nearer the root of the nerves axis-cylinders were more numerous. In the sciatic the sections from the highest part of the nerve, which had been preserved, were still diseased in a small proportion of their fibres.[1]

A very similar case, with the same changes in the nerves, is recorded by Müller.[2]

The following case, under my own care, terminated favorably.

Observation XI.—Male, aged thirty-six, a hard drinker, after an attack of gastritis became paralyzed suddenly in both legs. A few days after this, both hands became useless, so that he was completely helpless. His wife says that his memory is quite gone. On admission to Bellevue Hospital, September, 1880, seven weeks after the onset, he complained of pain in all four extremities, and of tenderness in the muscles and joints when these were handled. The upper extremities were almost totally paralyzed below the elbows, the only motion possible being a slight flexion of the fingers. There was wrist-drop on both sides. The lower extremities were totally paralyzed below the knee, and the feet hung down motionless. The muscles of the thighs were also affected, for although he could pull his legs up in bed, it was with great difficulty that they could be straightened out. All the paralyzed muscles were atrophied, and the faradic reaction was lost in the extensors and greatly diminished in the flexors. The galvanic reaction was not tested by me from lack of apparatus. Tactile sense was considerably impaired, but the senses of pain and temperature and muscular sense seemed to be natural. The knee-jerks were lost. When an attempt was made to have him stand, the feet were pushed out and the knees doubled under him at once. Fibrillary twitchings were very noticeable in the atrophied muscles, and a marked tremor of the tongue was seen. The facial and ocular muscles were not affected, and the special senses were normal. There was no incontinence of urine and no symptom of thoracic or visceral disease. His mind was much impaired. He talked in a rambling manner, laughed much, and could not fix his attention, and his memory was so poor that no reliance could be put in his statements. Under treatment by iodide of potash, and complete cutting off of all stimulants, he began at once to improve. In two months from the time of admission he was able to walk, and one month later he was discharged perfectly well.

These cases are sufficient to present a clinical picture of the symptoms and course of the forms of alcoholic multiple neuritis. The differential diagnosis, elements of prognosis, and means of treatment will be considered when other classes of the disease have been studied.

[1] RD = reaction of degeneration. AnCC = anode closure contraction. KCC = cathode closure contraction.

[2] Strümpell: Arch. f. Psych., 1883, xiv. 342.

[1] S. G. Webber: Arch. of Med., 1884, xii. 33–49.

[2] F. C. Müller: Arch. f. Psych., 1883, xiv. 3.

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(*b*) *Multiple neuritis due to poisoning by arsenic.*[1] It has long been known that an occasional result of arsenical poisoning is the development of paralysis, but it is only within the past four years that the fact has been determined that the symptoms in these cases are due to an affection of the peripheral nerves. Had the fact of the peripheral origin of alcoholic paralysis not been already proven, it is probable that the theory so long in vogue, that arsenical nervous symptoms were due to spinal lesions, would still prevail. But there is such a similarity between the two sets of cases, that it is impossible to ascribe them to other than the same pathological condition. Autopsies in support of the position that the peripheral nerves are involved are few in number, but in several cases the lesion has been found. The observations on record of spinal lesions are, it is true, more numerous; but when these are compared it is found that different lesions have been discovered in different cases, so that there is no single pathological change in the spinal cord which is constantly produced by arsenic. Further, some of the changes described in experimental cases in animals (viz., vacuolization of cells) are due to imperfect hardening of the specimens. It must, therefore, be admitted that multiple neuritis may be due to arsenical poisoning.

The changes produced in the nerves are so exactly similar to those already described, that there is no need of a recital of the pathological process.

The nervous symptoms produced by arsenic have been thought to vary somewhat, according as the ingestion of the poison has been a sudden or a gradual one. Brissaud claims that if there is slow poisoning, as, for example, by the long-continued use of Fowler's solution, paralysis is rather the exception, and is not severe, it is diffuse and transient; while other symptoms, such as gastro-enteritis, trembling, delirium, and aphasia, attract the chief notice. If there is acute poisoning from an overdose of arsenic, he holds, on the other hand, that paralysis ensues either during the period of active symptoms of poisoning, or soon after. The observations of other equally careful authors do not entirely support this view of Brissaud; for in two cases of Dana, one of acute, the other of chronic poisoning, very similar symptoms of paralysis and ataxia developed.

The description which has been given of alcoholic paralysis might almost be repeated for arsenical paralysis. There is the same limitation of the affection to the muscles of the distal parts of the extremities, the extensors being chiefly affected, and the weak muscles are flaccid, soft, and atrophied. There is a partial reaction of degeneration. The tendon reflexes are abolished; skin reflexes are preserved. There is often a marked tremor. The paralysis may begin either in the feet or in the hands, is usually bilateral, but has been, in four cases, of the hemiplegic type. The same dropped wrist and dropped foot are seen as in alcoholic cases. Disturbances of sensibility are prominent symptoms; burning, tearing, shooting pains; formication, tingling, muscular, and arthritic pains and tenderness are associated with hyperæsthesia, and this may be followed by irregular patches of anæsthesia. The muscular sense is usually impaired, and so much so in some cases that an attempt has been made to establish a distinct class of cases as arsenical ataxia, or pseudo-tabes arsenicale. In these cases the incoördination of hands and feet, Romberg's symptom, and an awkward gait are very noticeable, so that tabes may be suspected until the history makes the causation evident. In a case of Dana's the patient could not tell the position of his limbs or distinguish between weights differing one to forty. In Scolozouboff's case the walk resembled that described by Westphal in alcoholic tabes, and was easily distinguished from a real ataxic gait. Seeligmüller and Dana, however, affirm that the gait in their cases was like that of locomotor ataxia. Occasionally œdema of the extremities, cyanosis, unusual sweating, and extensive desquamation indicate an implication of vasomotor and trophic nerve-fibres. In the most severe cases contractures in a flexed position developed in the paralyzed limbs. The sphincters are never involved. The duration of arsenical paralysis is somewhat greater than that of ataxia. Either condition may last several months, but occasionally the recovery is complete in a few weeks. Frequently, after the power has returned, the patient suffers for months from numbness and tingling in the extremities which are sufficient, as in a case under my own observation, to interfere with the finer motions, to disturb the sleep, and to cause constant discomfort. According to Gerhardt's statement (cited by Dana), ninety-seven per cent. recover wholly.

(*c*) *Multiple neuritis due to poisoning by lead.* It is not my purpose to enter upon any description of the various forms of lead palsy, which are familiar to every practitioner. Nor is this the proper place for a discussion regarding the various theories of the pathology of the disease. It is only necessary to call attention to the fact that there are now on record a number of autopsies in cases of lead paralysis in which the lesion has been found in the peripheral nerves. In a recently published case of Schultze[1] there was found a very marked atrophy and disappearance of nerve-fibres in the trunk of the musculo-spiral nerve, below the point where the branch to the supinator longus was given off. This decreased in intensity centrally, so that at the brachial plexus no anomaly was found. It increased in intensity toward the termination of the nerve in the muscles. The spinal cord was normal. This is simply a type of a number of recently published cases. On the other hand, there are numerous cases of this disease in which decided spinal lesions have been found, so numerous that many writers always ascribe the disease to destruction of certain groups of cells in the anterior cornua of the spinal cord. It must be admitted, therefore, that in lead we have a poison which, under certain circumstances, affects the spinal cord, and under other circumstances produces neutritis. It may be claimed that the same is true of alcohol and arsenic, and in showing that these poisons can cause neuritis there is no intention of defending the position that they never affect the central nervous system. But it is important to notice that the central or-

[1] Scolozouboff: Arch. de Phys., 1884, p. 323. Imbert Gourbeyer: Des Suites de l'empoisonnement arsenical, Paris, 1884. Seeligmüller: Deut. med. Woch., 1881, p. 185. Lancereaux: Gaz. Hebdom., 1881, p. 719. Jaeschke: Thèse, Breslau, 1882. Ueber Lähmung nach acuter arsenik Vergiftung. Levin: Schmidt's Jahrbuch, Bd. 165, S. 239. Da Costa: Phil. Med. Times, 1881, p. 385. C. L. Dana: Brain, Jan. 1887. Brissaud: Paralysies toxiques, Paris, 1886.

[1] F. Schultze: Ueber Bleilähmung, Arch. f. Psych., xvi. p. 791.

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gans are rarely involved. The limitation of the neuritis in lead palsy to the motor nerves makes the clinical picture in some cases resemble closely that of spinal disease. In illustration of this the following case is cited:

Observation XII.—A male, aged thirty-six, by occupation a dyer, had suffered from numerous attacks of lead colic, followed by general muscular weakness, which on one or two occasions was so great as to be a general paralysis rather than a simple weakness, and had finally developed a paralysis of the extensors of arms and legs, when admitted to the hospital, where he spent the last three years of his life. During this time his paralysis varied somewhat in degree, but was never entirely recovered from. The muscles affected were the extensors of arms and legs. These were much atrophied, and showed a loss of faradic reaction, and a characteristic change in the galvanic reaction, the anode producing stronger contractions than the cathode, and all contractions being slow. There was also a considerable degree of œdema in the extremities, especially in the legs. Spasms in the unparalyzed flexors occurred on one occasion for one day. The patient suffered also from the symptoms of cardiac disease and phthisis, to which he finally succumbed.

The autopsy showed no changes in the brain or spinal cord. The muscular branches of the peripheral nerves, although presenting no macroscopic changes, were found in a state of extreme degeneration when examined microscopically. Side by side with normal fibres were to be seen fibres, unstained by osmic acid, wholly destitute of myelin sheath. There was no fatty degeneration. Between the fibres a thick, finely fibrillary connective tissue, with many cells, was found. Transverse sections of the nerve trunks showed a large number of small fibres scattered among the normal fibres, but not collected into bundles, and it was often difficult to distinguish naked axis-cylinders from connective-tissue fibres. The lesion was an increase in the connective tissue of the endoneurium with simple atrophy of the nerve fibres of different grades.[1]

But in a certain proportion of the cases of lead palsy there are marked sensory disturbances, consisting of severe pains, and anæsthesia, with numbness. In these it is possible, especially if tenderness along the nerves and in the muscles is present, to make the diagnosis of multiple neuritis. The history of the following case, under my care, coincides so closely with that of other toxic cases of neuritis that the diagnosis could not be mistaken.

Observation XIII.—Male, aged thirty-eight, after suffering from an attack of lead colic, began to feel numbness and pain in his legs and feet, which soon extended to his hands and forearms. This steadily increased for two weeks, and to it was added paralysis of the extensors of both hands and both feet, so that at the end of that time he was unable to use his hands or to stand. With the paralysis there was a rapid atrophy of the muscles, and a decline in the faradic excitability. The muscles became more and more tender, and the spontaneous pains gradually increased until it was necessary to use opium freely to quiet them. By the end of a month a well-marked anæsthesia had developed below the knees, and it was noticed that the atrophied muscles were in a constant tremor. There were wrist-drop and foot-drop on both sides, and all reaction to faradism ceased. It required a very strong galvanic current to produce contraction and ACC was greater than KCC. The knee-jerk was preserved. The muscular sense was impaired. For five months his condition remained stationary, in spite of treatment by strychnia, iodide of potash, massage, and electricity. Then a gradual improvement set in, the pains became less severe, sensation returned, the muscles regained their contour and strength, and, finally, the electric contractility returned to the normal standard. About a year from the onset of the symptoms the recovery was complete.

(*d*) *Multiple neuritis from poisoning by sulphide of carbon*[1] *and from illuminating gas* has been suspected, and the similarity of the symptoms in such cases to those already described is quite remarkable. But as there are no autopsies to substantiate the theory, this cause is merely mentioned.

(*To be continued.*)

[1] Eisenlohr: Deut. Arch. f. klin. Med., 1880, xxvi. p. 543.

[1] Ross: Medical Chronicle, January, 1887.

ORIGINAL ARTICLES.

IS THE DANGER FROM POST-PARTUM HEMORRHAGE INCREASED BY THE USE OF ANÆSTHETICS DURING PARTURITION?[2]

BY FORDYCE BARKER, M.D., LL.D.,
OF NEW YORK.

THE affirmative answer to the question which forms the title of this paper was one of the most effective arguments urged against the use of anæsthetics in midwifery nearly forty years ago by men of such obstetrical eminence as Tyler Smith, Robert Barnes, and many others. It carried great weight, as it seemed obvious that an agent which paralyzed sensation, and, if carried to its full effect, equally paralyzed voluntary motion, must inevitably arrest that muscular contractility which is the essential condition for preventing post-partum hemorrhage.

The influence of this impression is seen in the fact that nearly all works on obstetrics, even by the most recent authors and many writers in medical journals, refer to the danger of anæsthetics in causing post-partum hemorrhage. Barnes, for example, speaks of anæsthesia induced by chloroform or ether, as among the most efficient causes of post-partum hemorrhage.

These warnings work for good in so far as they lead obstetricians to take those precautions which I believe to be a duty in every labor, to prevent this appalling accident, for it is my firm belief that no woman under the care of a watchful, prudent, and competent obstetrician ever ought to die from post-partum hemorrhage, due solely to uterine inertia or ataxy.

This paper will only refer to hemorrhage from this cause, as no one will assume that anæsthetics can produce those local lesions which we all know sometimes cause terrific and even fatal hemorrhage.

[2] Read before the Medical Society of the State of New York, Albany, February 1, 1887.

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No one can doubt that either chloroform or ether may be given to the extent so far beyond anæsthesia as to induce profound narcosis, or that, if the uterus be suddenly evacuated while in this condition, there would be a temporary paralysis of the organ with a loss of power to contract and close the open mouths of the uteroplacental vessels.

The real question is whether anæsthetics, properly administered, should be withheld from a woman in labor, when desirable to save her from unnecessary suffering, on account of the danger of their causing post-partum hemorrhage.

I may here say that I have long regarded chloroform as the best and safest anæsthetic in obstetrics, and that since 1850 I have used no other.

My reasons for this preference are briefly these:

1st. Its odor is to most persons much more agreeable, and it is much less persistent. When sulphuric ether is used, it frequently, at first, produces more or less irritation of the fauces and bronchi and an annoying cough or choking is excited. The effect of this is bad, both on the patient and on the surrounding friends. It excites apprehension which more or less tends to counteract the influence of the agent.

2d. The influence of chloroform is much more rapid and a much less quantity of this agent is required than of the ether. We are thus saved, in a great majority of cases, the preliminary stage of excitement which the ether produces, and we are able to use the chloroform for each recurring pain, the patient in the interval being comparatively free from the influence of the anæsthetic. Thus, in the aggregate, not only is a much less quantity of the agent required, but the patient is exposed to the danger from the anæsthetic, if any danger there be, for a much shorter period of time.

3d. By chloroform we are able to regulate the degree to which we may desire to carry anæsthesia with a certainty and security that are not possible with the ether.

4th. The danger from anæsthesia by ether, where disease of the kidney exists, first pointed out by my friend Dr. Thomas Addis Emmet, and now confirmed by several observers, has not been noted by any one as resulting from the use of chloroform.

We all know that the great security against post-partum hemorrhage lies in the efficient and permanent contraction of the uterus after delivery.

While we are constantly meeting in obstetrical literature with the statement that the danger of post-partum hemorrhage is increased by the use of anæsthetics, I have never been able to find any statistical evidence in proof of the assertion. What is termed uterine inertia is often but another name for uterine exhaustion, and this must certainly be much less likely to occur when the nerve force and vital powers have been saved by the use of an anæsthetic.

This uterine exhaustion may be and often is the result of a prolonged labor, and while I am convinced that the effect of chloroform is often to prolong labor, I have not been satisfied that this apparent objection was not more than counterbalanced by the advantages obtained by its use, even where the use of the forceps has been made necessary from this cause.

But in a large majority of patients my experience would lead me to the conviction that the use of chloroform shortens the labor. I am certain that it does in all those cases where the pains are diminished or suspended by extreme sensitiveness and fear of pain, by vivid moral impressions or hysteria, or by pains resulting from the coincidence of some malady, either existing antecedent to, or appearing during labor, such as rheumatism of the uterus, or other muscular tissues, or sharp pains in the back or abdomen distinct from the pains from uterine contractions, gripings in the intestines, or the cramps which are occasionally produced by the pressure of the child's head on the sacral nerves; and, finally, in all those cases where inefficient uterine action results from loss of sleep and extreme exhaustion from a prolonged first stage; and in many cases where the labor is retarded by rigidity of the os uteri or perineum. Thus, on the whole, I am obliged to state my conviction that chloroform accelerates labor in a greater proportion of cases than it retards it.

I have attended a number of patients who in previous labors have had their lives endangered by post-partum hemorrhages, and who were placed under my care for this reason. All these cases I have watched with the greatest anxiety, and have endeavored to see that they were in such a condition as would best prevent the occurrence of this accident after delivery. On questioning them or their intimate friends, or, where practicable, their former medical attendant, I have learned that their previous labors have almost invariably been followed by great prostration, and that when labor was completed they were in a state of almost extreme exhaustion. A peculiar idiosyncrasy, or a former tendency to hemorrhage, or an extreme feebleness of the patient, has been assigned as the reason why chloroform had not been given in former labors; the very reasons why I should consider this anæsthetic, properly and watchfully administered, as especially indicated. Such patients have generally remarked to me, when they have come out from the influence of the anæsthetic, "How different I am from what I ever was before, after confinement." They take nourishment and stimulants, if need be, and I then feel warranted in assuring them that all danger of "flooding" has passed, but I never leave them until I am certain of the fact. When I do leave, I give emphatic directions to the nurse for close watching and minute instructions as to what she shall do if there be the least threatening of hemorrhage.

Some years ago, this subject came up for discussion incidentally before the American Gynecological Society,[1] in which one of my most valued friends, and certainly one of the most able writers on certain obstetrical subjects, expressed great surprise at statements of mine like those just made, for the previous winter I had been called to see a case in consultation with him on account of post-partum hemorrhage, which he regarded as due to the inhalation of chloroform. At the time, from the history then given, it was my conviction that the hemorrhage was the

[1] Transactions, vol. vii. p. 78.

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result of a very inefficient and partial use of the anæsthetic, as the patient, a very nervous, excitable woman, was extremely intolerant of pain, and, in consequence, she was never aided by the accessory muscles—and after several hours he was obliged to use the forceps. The hemorrhage which followed was the result of uterine exhaustion, due partly to emotional causes and partly to the fatigue of a prolonged labor. Three years after, by reason of the death of my friend, I attended this same patient in her second confinement. She was so sensitive to pain which bore no relation to the force of the uterine contractions, that, early in the labor, I gave her ten drops of Magendie's solution with the effect of quieting her, but regular labor pains did not follow.

She was extremely apprehensive of danger from the inhalation of chloroform. After watching her ineffective labor for some hours, I persuaded her to make only one full inspiration of chloroform to relieve the next pain. She was ready to make two inspirations with the next, and three with the next, and soon came under its full influence during the pains, but was perfectly conscious for a moment or two during the intervals, until with the return of a pain she would very impatiently call for the chloroform. After this the labor went on regularly and rapidly, so that the child was born within one hour after she commenced the inhalation of the chloroform, and the delivery was followed by perfect uterine contractions and no hemorrhage. Her convalescence was in every respect most satisfactory.

In the discussion alluded to, my friend expressed the opinion that danger of hemorrhage did not follow the use of sulphuric ether. I have never seen hemorrhage follow the use of either agent (I have never used ether in obstetric practice since 1850), but I should reason *à priori*, that an agent which paralyzed the nerves of the uterus and thus prevented its permanent contraction, would be dangerous in exact ratio with the continuousness of the effect, and that an agent, the extent of the anæsthesia from which is perfectly under the control of the administrator, the effect of which is intermittent and which is only used during the time of pain, would be safer.

The danger of post-partum hemorrhage in patients with cardiac disease is known to all. It seems to be almost accepted as an axiom with both the profession and public, that the inhalation of chloroform is dangerous for any woman with "disease of the heart."

For more than thirty years I have been convinced that this opinion is quite erroneous, and I have so taught in my lectures and in former writings.

In March, 1853, I was called to see the wife of a physician in this city in her fifth labor. I had seen her once before, the latter part of the previous December, with the late Professor Chandler R. Gilman, to decide as to the propriety of the induction of premature labor, as she was suffering from severe cardiac troubles.

She had been repeatedly examined by Dr. Alonzo Clark, whose diagnosis was, great dilatation of the left ventricle and mitral insufficiency. We were then in full accord that the induction of premature labor would be unsafe. When labor came on, I was sent for, as Dr. Gilman was ill. When I saw her she had been in the second stage of labor, as her husband said, about one hour. The first stage had been nearly four hours, unattended by any symptoms to cause grave anxiety, but when the expulsive pains began, her condition became rapidly bad. Each pain, which recurred every six minutes, caused faintness, nausea, and slight vomiting, but the pains were much more severe in the chest than in the uterus. Her appearance was appalling, the countenance was extremely pallid, the lips and fingers were cyanosed, the face was covered with large drops of perspiration, and the pulse very weak and irregular. The os was nearly dilated, very soft and yielding, the membranes protruding, but the pains very ineffective. After watching her for a few moments, I regarded her condition as perfectly hopeless and proposed chloroform, solely in my own mind, with the hope of euthanasia. Her husband would not consent to this, making the objection that she could not bear an anæsthetic, as she had once inhaled ether to have a couple of teeth extracted, with very dangerous results. I then gave her five drops of Magendie's solution of morphia, which was followed for a time by some improvement. But soon after her condition became as bad as before, until I could not bear to witness her suffering any longer and avowed my intention of leaving, as I could be of no service. Her husband begged me to stay, adding, "Do what you think best and God help you."

The few moments that we had to wait before the chloroform could be obtained, seemed to me so many hours, which I passed in trying to get her to swallow some brandy and water, to which she had a great aversion, and in explaining to her exactly *how* I wished her to inhale the chloroform; I began by giving a few whiffs first, as an impending pain was apparent, gradually increasing the amount until she became unconscious during the pains. She was always conscious some time during the interval between each pain.

After a short time, a wonderful change was apparent, her pulse became regular and stronger, while her husband, who frequently counted it, said that it never exceeded 96 a minute; while, before my arrival, it had been 140 in the intervals, but could not be counted during the pains. Her countenance improved in color, and assumed a most placid, contented expression.

During the pains there was no voluntary assistance on the part of the patient, and but slight aid from the accessory muscles. After she had been taking the chloroform an hour the membranes ruptured, and finding the head low down in the pelvic cavity, the position favorable, and the soft parts yielding, I said to the husband, "What is the use of letting her suffer more fatigue? The forceps can be applied with great ease, and may shorten the labor two or three hours." It was applied, without changing her position in the bed, and in a few minutes she was delivered of a living girl, weighing six pounds and a half. She made a very good convalescence.

In January, 1856, I again attended this lady in

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confinement. For the three months previous, I had seen her often and had endeavored to lessen the labor of the heart by improving the character of the blood which it circulates by such medicines as the tincture of the chloride of iron, the chlorate of potassium, and digitalis. The labor was short and comparatively easy under chloroform and delivery by the forceps. She outlived her husband three years, but died in July, 1860, from Bright's disease and her cardiac troubles.

Since this case I have seen several others in which labor was dangerously complicated with heart troubles, and which terminated favorably, as I think, solely from the use of chloroform.[1]

So far as I know, these views which I have long taught, have been advocated by no author until the publication of the valuable work by Dr. Angus MacDonald, of Edinburgh, in 1878. His explanation of how the uterine contractions of the second stage, where heart trouble exists, cause the dangerous symptoms of violent palpitation, dyspnœa, syncope, etc., is most satisfactory to my mind.

An interesting paper on this subject by Dr. J. L. Owen, appeared in the *New Orleans Medical and Surgical Journal*, in 1881.

There are so many important papers to be read before the Society that it would be wrong for me to occupy its time longer. I will, therefore, close with a statement of my personal experience in the use of chloroform in parturition.

During the past thirty-seven years I have rarely attended a woman in confinement without the use of chloroform—never where she has suffered considerable pain. Having thus used it, in several thousand cases, I unhesitatingly assert that not in a single case have I ever found reason to regret its use.

In addition to my own experience, I have carefully watched for all that has been published on this subject, and I am fully in accord with an eminent authority on obstetric anæsthesia, Dr. J. B. Reeve,[2] of Dayton, Ohio, in his assertion that

"The most rigid scrutiny, inspired by hostility, has failed to show that, when judiciously used, it exerts any injurious influence on the mother or child.

"Chloroform has been used in natural labor many hundred thousands of times, yet but a single case of death is on record, when it was administered by a competent medical man, and in this there is lack of post-mortem confirmation."

I would add, that in this case the death was preceded by a convulsion.

In my private practice, I have never had but one case of post-partum hemorrhage, and in this no anæsthetic had been used, as the child was born within five minutes after I entered the room, before I had time to make any examination, and a terrific flooding followed.

[1] I find the following sentences in the most recent work on obstetrics, a most interesting and valuable text-book by Dr. Parvin. "Vergeley, quoted by Dutertre, states that cardiac diseases do not forbid the use of an anæsthetic in labor, and chloroform acts as a sedative in these affections, and may be given prudently. Barr believes that obstetric anæsthesia has a beneficial sedative action upon the heart." (Science and Art of Obstetrics, by Theophilus Parvin, M.D., LL.D., page 232. Phila., 1886.)

[2] Wood's Reference Hand-book of the Medical Sciences, Anæsthesia, page 195.

LARGE DOSES OF IODIDE OF POTASSIUM IN A CASE OF PROBABLY SPECIFIC BRAIN TUMOR.

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M. J. K., aged sixteen, applied to me November 24, 1885, with the following history: When a child she was struck in the right eye, and has never been able to see out of it since, and now has barely light-perception. The left eye has failed so that she has not been able to read for the past two months. She states that once before she lost the sight of the left eye, so that she could not read, but the vision came back slowly, and after a period of six weeks she could read again.

The following is all the family history she knows: Supposes her father is living, but she has heard nothing of him for seven years; mother died of consumption several years since; had two brothers, both dying in infancy, one of "consumption," and one sister living and healthy. The patient herself is a stout, dark-haired, florid, well-nourished, well-developed girl. States that she has never menstruated. For two or three years past she has had violent attacks of headache, coming on two or three times weekly, accompanied with vomiting. For the past two months she thinks the headaches have not been so severe, but the failure of vision has come on with the subsidence of pain. She has somewhat of a staggering gait in walking, and often has dizzy spells. The ophthalmoscope shows extensive choroidal changes in various parts of the fundus of the right eye, and particularly in the macular region; atrophic changes of the optic disk, arteries thread-like, and a hypermetropia of about 7 D. In the left eye the disk is swollen, edges obscure, the vessels embedded in the œdematous papilla, and the mediæ slightly hazy; hypermetropia of 3 D.; no choroidal changes. Vision equals $\frac{6}{36}$.

Two weeks later, December 11th, the patient was admitted into Charity Hospital, when vision had so far diminished that she had only light-perception in either eye; patellar reflex was very much decreased, and the difficulty in walking had greatly increased. She would stagger about, having a tendency to fall, and had frequent dizzy spells. Potassium iodide, gr. v, and hydrarg. bichloridi, gr. $\frac{1}{48}$, three times daily, were administered, the dose to be increased.

By the early part of January, 1886, the gait had become so much affected that she could not walk alone without falling, and frequently had attacks of tremulousness in which she fell to the floor, but did not have a regular convulsion, nor did she ever lose consciousness. These attacks were often very frequent, coming on several times a day. After these there was generally a good deal of pain over and back of the right eye.

The case continued in about this condition, or perhaps slowly became worse, until the latter part of January. At this time there appeared upon the right side of the head, and a little later upon the left side, in front of and a little above the ear, extending

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from the zygoma upward into the temporal region, a peculiar swelling which rapidly increased. This gave a feeling like that of fluid under the periosteum, and, when pressed upon, a peculiar crepitant sensation like a soft-shelled egg when indented, or like parchment. When this swelling was pressed upon with the finger, and the finger suddenly removed, it returned to its original form with a sharp snap which could be distinctly heard at a distance of several feet. This condition lasted several weeks, and then slowly disappeared, subsiding entirely, leaving the region in its normal condition. Until the middle of March the condition of the patient remained much the same, or she became slightly worse. The general health was somewhat affected, she became pale, and her appetite impaired. The mercury had been continued until the gums were slightly touched, and tonics and good diet administered. The papilla of the left eye gradually but surely passed through the stages of optic neuritis, and terminated in an atrophic condition, with thread-like arteries, pale, contracted disk, and hopeless blindness.

Moderate doses of iodide of potassium and mercury pushed to its physiological indications not having produced any decided improvement by May 1st, I decided to push the iodide of potassium to the limit of tolerance. However, for ten days or two weeks before this, there had not been quite so much headache, and the nausea and vomiting had somewhat diminished. On May 3d the patient was ordered thirty grains of iodide of potassium three times daily, in plenty of water half an hour before her meals, the dose to be increased by five grains each succeeding day. By May 6th the dose had reached forty-five grains, and, as there were no indications of iodism, the dose was ordered to be increased by ten grains daily. By May 14th the patient had reached ʒij three times daily, with no iodism, and the dose was ordered to be increased by twenty grains daily. This was continued until the patient was taking ʒiij three times daily. By this time the potassium had produced some gastric irritation, and the patient complained of cramp-like pains in the stomach when the medicine was omitted. No other evidence of iodism appeared, except that the flow of saliva had slightly increased. From this time on the patient very materially improved in every way except vision, the restoration of which we had not hoped for. Until the present time there has been no return of the symptoms. She has had no headache, no vomiting, no staggering of the gait in walking, no attacks of tremulousness or dizziness; general health is excellent, and she feels in every way well. Her menstrual function has been established within the last two months. Her patellar reflex, however, remains somewhat diminished, and the optic atrophy is almost complete.

I call attention to this case with a twofold purpose. First, for the interest which is attached to the history of the case itself; and, second, as showing the extent to which the iodide of potassium may be pushed without deleterious effects.

The frequently recurring attacks of headache usually located in the right frontal region, the vomiting, the unsteadiness of the gait with attacks of tremors, and a disposition to fall, the development of optic neuritis terminating in progressive atrophy, and rapid and complete loss of sight, all point unmistakably to a tumor of the brain. Of the cause and location of the tumor we have no certain knowledge. Two points, however, strongly indicate a specific origin. The first is the family history, and the second is the therapeutic test. While the tolerance of large doses of the iodides does not infallibly demonstrate a specific state of the system the presumption in favor of this view is very strong.

So good an authority as H. C. Wood,[1] states that "if sixty grains of iodide of potassium per day fail to produce iodism, for all practical purposes, the person may be considered a syphilitic." Besides, another recent authority[2] states that "of all brain diseases occurring between the ages of twenty-five and forty years, probably eighty per cent. are due to syphilis." It would have been an easy matter for this case to have been infected in childhood, and, considering the uncertain moral element surrounding her youth, it is not at all improbable. One point which should be emphasized in connection with brain tumors, is the very frequent involvement of the visual apparatus.

In an article on "Brain Tumors" in Pepper's *System of Medicine*, Drs. Mills and Lloyd report a series of one hundred cases of tumors of the brain in which autopsies were made and the tumors located. Of these one hundred cases, fifty-one had impairment of vision or optic neuritis, and twenty-six had some affection of the muscular appendages of the eye. In other words, no less than seventy-seven per cent. of these cases showed decided eye symptoms, while several others either died suddenly, leaving no opportunity for an examination, or else the eye symptoms were not noted.

The most interesting feature of this case, however, has been the remarkable tolerance of the iodide of potassium. So far as I have been able to find in the literature on the subject, at my disposal, no such dosage has been reported. While there is little or no danger of death from this salt, yet the symptoms often engendered by it are so disagreeable and annoying as not to be desirable.

In the cases[3] where death has occurred after the administration of this salt, it has been used in combination with the chloride, which together form an irritant and poisonous iodate of potassium. H. C. Wood[4] recommends the iodide in doses of one to three drachms daily in cases of syphilitic affections of the brain, while Bumstead[5] states that he has given as high as two drachms three times daily with impunity.

De Wecker[6] urges the use of large doses if smaller ones do not produce the desired effect, and advises ten to twelve grammes (154–186 grains) to be given daily.

The U. S. Dispensatory[7] states that the dose may

[1] Pepper's System of Medicine, page 1013.
[2] Julius Althaus: THE MEDICAL NEWS, 1886, page 422.
[3] Wharton and Stillé's Med. Jurisp., 4th ed., vol. ii. p. 137.
[4] Pepper's System of Medicine, vol. v. p. 1016.
[5] Bumstead on Venereal Diseases, 3d ed., p. 509.
[6] Ocular Therapeutics, Eng. ed., p. 425 *et seq.*
[7] U. S. Dispensatory, article on Potassium Iodide.

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be up to six drachms daily, and that Dr. Buchanan, of Glasgow, has given half an ounce at a single dose with no deleterious effect, but this latter dosage was not continued for any length of time.

The lesson we may learn in this connection is, that whenever tertiary syphilis is present in any form, and we do not get satisfactory results from small or moderate doses of the iodide of potassium, the case should not receive an unfavorable prognosis until this salt has been pushed to the utmost limit of its physiological tolerance. We will often get surprising results from this method, and not to be obtained in any other way.

In the administration of the iodide of potassium the use of the following formula will be found convenient:

℞.—Potassii iodidi . . . . . ʒj.
Aquæ distillat. . . q. s. ad ʒj.—M.

Of this solution one minim equals one grain of the salt, but it should be remembered, however, that one minim equals about two drops. The disagreeable taste is best concealed by adding to the dose one or two teaspoonfuls of the compound syrup of sarsaparilla, and it should always be freely diluted with water.

A CASE OF PRIMARY SARCOMA IN THE ANTERIOR MEDIASTINUM.

BY EDWARD T. BRUEN, M.D.,
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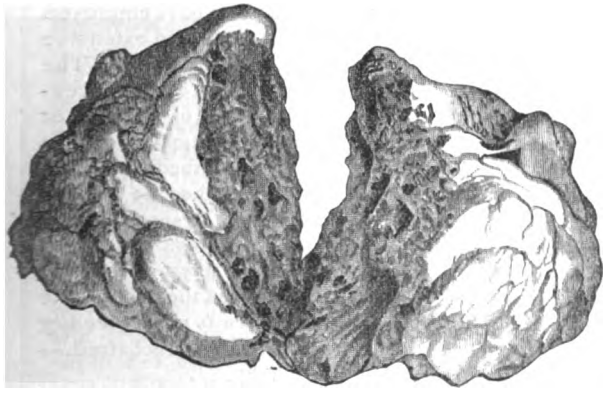
THE case upon which this paper is based is that of Mary B., æt. seventy years, who was admitted into the Philadelphia Hospital June 26, 1886, suffering from uræmia, from which she died June 29, 1886.

At the post-mortem examination the body appeared well nourished. The lower limbs were œdematous. The point of special interest centred in the discovery of a large tumor which occupied the anterior mediastinal space.



The mass weighed fourteen ounces, it was six inches long by five inches broad and four inches in diameter. It was about the size and shape of the average normal heart. It presented a reddish-white, fleshy appearance, and was quite soft and pulpy in consistence. The tumor was situated immediately behind the upper piece of the sternum. It consequently overlaid the aorta and pulmonary artery with the other structures lying in the deeper mediastinal spaces—it also encroached upon the left thoracic cavity. The upper lobe of the left lung was pushed aside by the mass in a direction outward and backward. The lobe was splenified and the lower lobes of the lungs on both sides were somewhat congested. There were only a few slight adhesions between the tumor and the visceral layer of the pleura of the upper lobe of the left lung. The tumor was not in any manner attached to the sternal or costal bones. The bronchial glands in the anterior mediastinum were slightly enlarged, but the glands at the roots of the lungs were normal. The remaining structures in the thorax, including the heart, were normal. The kidneys presented the usual appearances characteristic of the granular contracted organ. The capsules were adherent and numerous cysts studded the cortical portions. The uterus was covered with fibroid growths, and the ovaries were calcified. The liver and spleen, with the other abdominal viscera, were carefully examined, but nothing of an abnormal character could be discovered. A biliary concretion was found embedded in the intestinal mucous membrane just below the opening of the gall-ducts. The brain and its membranes were examined, but nothing of an abnormal character was detected.

The specimen is, therefore, of special interest because it is an example of a case of primary sarcoma of large size located in the anterior mediastinum without any secondary formation. As already stated, none of the lymphatics in the mediastinum were enlarged, and the growth seemed to have originated in the pleura of the anterior mediastinum. The results of microscopic examination would class this tumor with the small round-celled sarcomata with a tendency to alveolar formation.

The clinical features peculiar to this case, although by no means unique, yet deserve consideration:

1st. The morbid growths in this region of the body are usually sarcomatous.

2d. The age of the patient, which was advanced, is an unusual and yet recorded coincidence in tumors of a sarcomatous nature in this location.

3d. The absence of wasting and cachexia. The patient's appearance was that of a person in average health. This peculiarity is also not remarkably exceptional in this class of cases.

4th. The almost entire absence of any subjective symptoms pointing to the morbid growth. The patient was under observation but a few days before her death. She complained of slight cough and dyspnœa, and auscultation of the chest revealed feeble respiration over the posterior portions of both lungs, also anteriorly over the left apex.

There was dulness on percussion over the sternum, and some four finger-breadths to the left of the sternal margin; but when these physical signs were detected the patient was near her death, and their true significance was not established.

The patient came to the hospital for treatment of symptoms which were plainly dependent upon renal disease, such as albumen with casts in the urine; increased arterial tension; with nervous symptoms

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usual to uræmia, which was the immediate cause of death. As the patient had worked as a domestic until shortly before applying to the hospital, it is fair to assume that there were no important subjective symptoms to call attention to the thoracic mischief.

5th. The foregoing statement is in consonance with the history of anterior mediastinal growths, which are much less likely to occasion severe pressure symptoms than tumors originating in the other mediastinal regions.

6th. While the diagnosis in this case was not established during life, and while the case represents very forcibly the slight disturbance of the economy which may accompany certain of these mediastinal growths, and particularly those occupying the anterior mediastinum, yet it is quite probable that had there been opportunity for a more thorough and prolonged study, the diagnosis might have been established. The dulness over the left sternal region, the distant and feeble heart sounds and weak respiratory murmur over the left apex with the dyspnœa were certainly suggestive symptoms.

MEDICAL PROGRESS.

ASEPTOL: A NEW DISINFECTANT.—This substance is orthophenol-sulphuric acid, and has been known since the year 1841. It has been lately brought forward in France as a disinfectant, and Dr. Hüppe (*Centralb. f. d. Med. Wiss.*, No. 50, 1886) has made experiments with it, which have led him to the opinion that it possesses advantages entitling it to rank beside carbolic acid and bichloride of mercury. Commercial aseptol is a syrupy liquid, having a faint odor of carbolic acid. It is soluble in all proportions in water, alcohol, and glycerine, and even in a 10 per cent. solution has no caustic action upon the skin. Such a solution kills spores of anthrax in thirty minutes, whilst a 5 per cent. carbolic acid solution requires at least twenty-four hours to produce the same effect. A 3 or 5 per cent. solution of aseptol is a true disinfectant for spore-free microörganisms, or for such as do not form endogenous spores. A 3 per cent. solution was found quite sufficient to disinfect the (previously cleaned) hands. Solution of aseptol in alcohol, glycerine, or oil (in the last named no permanent solution takes place) showed no disinfectant power. By heat it is changed into the corresponding para-combination.—*British Medical Journal*, Jan. 1, 1887.

POISONING BY MUSHROOMS.—After mentioning the poisonous substances which have been found in the deadly variety of these plants, BENGNIES-CORBEAU describes the treatment of poisoning which occurs from their ingestion as follows:

The emptying of the intestines, by ipecac or castor oil. Stimulants, warmth, and friction. Subcutaneous injections of ether have been of great service.

The use of the following has also been beneficial:

Ammonii acetat.	℥ijss.
Aquæ chloroformi	℥j.
Tr. opii	gtt l.
Syrup. menthæ piperitæ . .	℥jss.
Aquæ	℥vjss.—M.

Tablespoonful every half hour, or hour, as needed. Also,

Syrup. morphiæ	℥x.
Syrup. ætheris	℥v.
Aquæ	℥vj.—M.

Tablespoonful every hour.

The administration of isolating and neutralizing remedies: among these are albuminous liquids; milk; lemonade, containing eight grains of tannin to the quart, or fifteen grains of iodide of potassium.

As physiological antidotes, we find muscarine and atropine, administered in the order named, and in doses to secure the full physiological effect these remedies offer the best hopes in treatment.

Siccard has treated dogs by subcutaneous injection of pilocarpine in doses of one-sixth of a grain, supplemented by energetic friction; the injection was repeated in half an hour, given over the heart. As soon as deglutition was possible, a drink of marshmallow water and potassium nitrate was freely given. Recovery followed this treatment.—*Revue de Thérapeutique*, January 18, 1887.

ANTI-PARASITIC INJECTION FOR BLENNORRHŒA.—DELPECH treats blennorrhœa with the following injection:

Peptone, mercurial	gr. ½.
Aquæ destill.	℥vj.

Injection is made, morning and night, as follows: the liquid is twice injected and at once expelled; the third time it is allowed to remain two minutes. The peptone compound employed is one-fourth part sublimate.—*Les Nouveaux Remèdes*, December 24, 1886.

A NEW "CURE FOR CANCER."—DR. VELLOSO lays claim to having cured several cases of epithelioma of the face and lips with the juice of alvelos, a plant which belongs to the family of Euphorbiaceæ. It acted as an irritant, and destroyed the diseased tissue, which was quickly replaced by healthy granulations. Of the three different kinds of alvelos (male, female, and wild), the second is considered the most efficacious. It is found at Pernambuco, and although the natives have employed the juice for some time, it has not come into extensive use on account of the severe pain which it causes. The best results were obtained with the juice in a concentrated solid form, and with the addition of vaseline or lanoline. This preparation should be applied with a brush to the affected part (previously washed with a solution of carbolic acid), which should then be left exposed to the air for at least an hour. It should afterward be covered with lint. This treatment should, as a rule, be repeated every two or three days, and never more than once in twenty-four hours, as the pain of the application is severe. The treatment was more speedily successful when begun before ulceration had occurred.—*British Medical Journal*, Jan. 1, 1887.

MICROÖRGANISMS IN THE BLOOD; SPREAD OF EPIDEMICS.—An important paper was published by Wyssokowitsch on the fate of microörganisms when injected into the body of warm-blooded animals. In 1874, Traube and Gscheidlen found that, if a quantity of putrid fluid were injected into the blood of rabbits and dogs, and the blood taken twenty-four hours later, with

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aseptic precautions, no organisms developed in it, showing that the bacteria introduced had disappeared from the blood, or had been destroyed in it in that short time. Some years later, Watson Cheyne found also that saprophytic bacteria, when injected into the blood-stream of rabbits, disappeared from the blood in twenty-four or forty-eight hours, and he concluded that they had been destroyed in it. Pursuing the subject further, he found that if larger quantities were introduced, along with the fluid in which they grew, they were able to survive for a longer time, and that the same was the case with smaller quantities, if the animals experimented on had been previously weakened in health by the administration of repeated doses of phosphorus or other poisons. He explained this fact on the supposition that the products introduced with the larger quantities of putrefying fluid, or the poisons previously administered, had so weakened the vitality of the blood and tissues that they were no longer able to destroy the bacteria. Wyssokowitsch has repeated the experiments, and has come in the main to the same conclusions as Watson Cheyne, but he has added several interesting observations. In the previous researches, mixtures of bacteria, probably not containing spores, were employed; but Wyssokowitsch used pure cultivations of known organisms, and found that, while sporeless bacteria were rapidly destroyed, the spores could retain their vitality in the body for a long time, and remained in the tissues in a dormant state. In both cases, the blood very rapidly became freed from organisms, but the spores were deposited chiefly in the liver, spleen, and medulla of bone, and were apparently taken up by the endothelial cells of the capillaries, in which they were found embedded many days after their introduction. In one case a few spores of bacillus subtilis were found alive in the liver seventy-eight days after their injection, although none was present in the other tissues or organs. Wyssokwitsch's results with pathogenic organisms are very interesting. When only a few anthrax bacilli were injected, they disappeared from the blood almost completely for some hours, but after twenty-four hours they began to appear again, and increased in number till the death of the animal. When they were introduced in large numbers, this disappearance from the blood was not very marked. Apparently all bacteria tend to be deposited in the organs before mentioned, and in the case of non-pathogenic organisms are there rapidly destroyed unless spores are present. In the case of pathogenic bacteria, this deposit and destruction of the organisms is incomplete, and they very soon gain the upper hand, and again spread into and multiply in the blood. We have thus in the structure of the vascular walls, and especially in the endothelial cells of the capillaries, a protective arrangement against any bacteria which may find their way into the blood, These organisms are deposited and retained in or between the endothelial cells of the capillaries, especially in the organs in which the circulation of the blood is slowest. Then begins a battle between the cells and the bacteria, which results either in the destruction of the bacteria or of the cells, which in the latter case provide a pabulum for the further development of the organisms. Those bacteria which, as a rule, gain the victory must be looked on as specific bacteria, pathogenic for the class of animal experimented on.

Although in many cases it is now definitely proved that the microörganisms present are the cause of the disease, very little is known as to the modes of infection and the spread of epidemics, and accordingly the attention of several investigators has been attracted to this question. In the case of several diseases, such as anthrax, typhoid fever, cholera, etc., Pettenkofer has strongly advocated their relation to the soil. He holds that a certain local and seasonable condition is essential to the spread of these diseases, and finds these two factors in a porous material, the soil penetrable by air and water, and soaked with organic substances (local predisposition), and in variations in the moisture and temperature (seasonal predisposition). He teaches that the so-called contagious miasmatic infective diseases are in reality true miasmatic or soil affections. The virus is formed outside the body. The virus, x, leaves the body in an inactive condition; outside the body, in the ground or in a suitable substitute, something, y, is added to this inactive germ, and out of this combination, which occurs only outside the body, that is, out of x and y, is formed the infective germ z. That this supposition is in part wrong, is now proved as regards anthrax and cholera, by the fact that the intestinal discharges from animals suffering from these diseases are capable of giving rise to them in another animal, showing that the infective material leaves the body in a thoroughly active condition. Nevertheless, when these and other similar diseases occur in an epidemic form, it must be admitted that there is some relation between the soil and temperature, and the spread of the disease. What this relation is has been the subject of investigation by Soyka, Hueppe, and others. Soyka has examined the relation of bacteria to soil, taking especial note of the effect of moisture, temperature, and air. He finds that when anthrax bacilli are placed on soil they rapidly develop spores, and thus provide for their future propagation, and that the rapidity and certainty with which this occurs depend on the degree of moisture, on the temperature, and on the access of air. The necessary conditions are present in nature during the greater part of the year, and it is in this way that the soil is so essential to the spread of this disease. For were it not for this effect of the soil, these bacilli would soon die out because they are quickly destroyed by the ordinary saprophytic bacteria, if they are not in the spore condition. The soil acts then not by adding to their virulence, but by providing against their destruction. Hueppe has made a special study of this matter in reference chiefly to an epidemic affection of deer caused by a small bacterium. Here Hueppe found that the only relation to the soil was, that the infection was generally intestinal, that the bacteria could vegetate luxuriantly outside the body, and were not killed in passing through the stomach. Pettenkofer looks on inhalation as the chief mode of infection, and in fact disregards infection through drinking-water. The researches of Hueppe and Soyka show that in this he is wrong, and that infection occurs probably most often through the food and drink. Each disease seems to have its special mode of infection, depending on the biological characters of the microörganism which causes it.—*British Med. Journal*, December 25, 1886.

MYOCTONINE.—The *Journal de Médecine de Paris* publishes the following note on myoctonine. Myocto-

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nine is one of the two substances extracted from aconitum lycoctonum by MM. Dragendorff and Spohn. It is a yellow, bitter, amorphous body, having for its formula $C_{27}H_{30}N_2O_8$, and fusible at a temperature of from 143.5° to 144° C. It is not very soluble in water, but much more so in acidulated water, and soluble in all proportions in sulphide of carbon, absolute alcohol, chloroform, and benzine. Ether and the light essence of petroleum dissolve only traces of it. Myoctonine is a powerful poison, resembling curare in its action. The injection of $\frac{7}{1000}$ of a gramme produced distinct toxic symptoms in a cat, while one-tenth of a gramme caused death in twenty or thirty minutes. Lycoctonine and lycaconine, which are products of the decomposition of lycaconitine and of myoctonine, have a physiological action which recalls that of the primitive alkaloids, but less powerful.—*British Medical Journal*, Jan. 15, 1887.

TREATMENT OF CEREBRAL ANÆMIA.—DUJARDIN-BEAUMETZ advises the following regimen:

After each meal a teaspoonful of syrup of iodide of iron taken in seltzer water. On retiring, a teaspoonful of this mixture:

Potass. bromid.,	
Sodii bromid.,	
Ammonii bromid. . . .	āā gr. xx.
Aquæ destill.	℥j.

Two sulphur baths should be taken weekly; when the temperature of the external air will permit, cold douches should be substituted for the sulphur baths, followed by hot foot baths.—*Revue de Thérapeutique*, Jan. 1, 1887.

TREATMENT OF MALIGNANT PUSTULE.—Two methods of treating malignant pustule, for which the respective authors claim marked success, have lately been mentioned in Spanish journals. Dr. Avendaño, of Peru, makes a crucial incision, and applies the ordinary solution of ammonia to the cut surfaces with a brush, giving at the same time a mixture containing acetate of ammonia. Dr. Rivas, of Cartagena, applies to the affected part a paste composed of oil of turpentine and quinine. This latter is said to have been efficacious even in a case where it was applied by the patient himself without medical advice, after having seen the beneficial effects of the paste prescribed on a companion.—*British Medical Journal*, Jan. 15, 1887.

ANTI-NEURALGIC PILL.—The following is the formula of LABORDE:

Aconitinæ crist.	gr. $\frac{8}{1000}$.
Quiniæ hydrobromat. . . .	gr. jss.
Syrup. quinquiniæ	q. s.

One pill may be taken every four hours, until five or six daily are taken; the frequency of the dose should be diminished as soon as the full effect is established.—*Revue de Thérapeutique*, January 1, 1887.

A SIMPLE CLASSIFICATION OF INSANITY.—DR. JOHN P. GRAY gave the following:

Mania, manifested by delusions of excitement, expansive ideas, exaggerations, self-consequence, incoherence, etc.

Melancholia, manifested by delusions of depressing character, painful ideas, and apprehensions.

Dementia, representing conditions of mental failure and feebleness of mental action.

All cases of insanity come under these three heads. Cases may be acute, subacute, chronic, periodic, paroxysmal, but they are mania, melancholia, or dementia.—*Med. Record.*

THE THERAPEUTICS OF WHOOPING-COUGH.—Last year MICHAEL, of Hamburg, originated a method of treatment by nasal insufflations of powders of pulv. resinæ benzoæ, chinin. sulph., and arg. nit. 1–10. Benzoin has an agreeable taste, no toxic effect, and is most serviceable. The author relates 250 cases in which this treatment was adopted. Of 100 carefully observed cases, 8 had no further attack after the first insufflation. In 3 of these there was a return and 5 were cured permanently. In 74 per cent. there was substantial benefit, no effect in 12 per cent., and increase of the cough in 14 per cent. 7 per cent. were cured in three days, 23 per cent. in less than twenty days; the rest occupied three to five weeks. In 20 cases there was improvement, with cessation of vomiting, epistaxis, and asphyxia. The best effects were observed in very new and very old cases. The duration of the treatment was fourteen days in 50 cases. The author's results are confirmed by the publications of Bachem, Guerder, Lublinski, Stoerk, and Ziem.—*Journal of Laryngology*, January, 1887.

AN APPLICATION IN BLENNORRHŒA.—UNNA applies the following, with a sound:

Ol. theobrom.	100 parts.
Ceræ flavæ	2 to 6 "
Argent. nitrat.	5 "
Balsam. Peruv.	2 "

Four or five catheterizations with a tin sound anointed with this mixture generally sufficed to cure chronic inflammations of the urethra; in some cases it was necessary to repeat the series of soundings several times, and in severe cases the injections of sulpho-phenate of zinc were also employed.—*Revue de Thérapeutique*, January 1, 1887.

PARTURITION AMONG THE SYPHILITIC.—COMBES, in 188 cases, found that parturition proceeded without fever in 141; in 35 cases fever occurred, but for reasons independent of the diathesis: in 12 cases the fever which occurred was distinctly referable to syphilis or its sequelæ. After a careful analysis of cases which had fever, the author distinguishes two as especially of specific origin.

Retention of the membranes occurred in 37 cases; traumatism, more or less severe, occurred in 47 cases; the placenta was found diseased in 25 cases; the cure or the amelioration of the specific lesions followed parturition in 38 cases.

Among children the results were as follows: With the mothers who had no fever living children were born in 65 cases; 17 were stillborn; 59 were macerated, and 17 died ten days after birth.

Among the women who had fever 23 living children were born; 2 were stillborn; 15 were macerated, and 3 died ten days after death.

In the 188 cases 113 children perished from syphilis, a mortality of 60.1 per cent.—*Annales de Dermatologie et de Syphiligraphie*, December 25, 1886.

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SATURDAY, FEBRUARY 12, 1887.

EXCISION OF THE KNEE.

IN the *British Medical Journal* for January 15, 1887, HERBERT ALLINGHAM describes a method of excising the knee-joint, which he believes to be new, but which really originated with Ollier, of Lyons. As it possesses decided advantages over the ordinary procedures, and as we do not doubt that it will prove to be new to the majority of our readers, no apology is needed for bringing it to their notice.

An incision, carried from two or three inches above the patella, over that bone, and down to the tubercle of the tibia, splits the quadriceps tendon into the synovial pouch above the joint, as well as the ligament of the patella, and the bone itself is sawed into two equal halves. These halves being held out of the way, the crucial ligaments are divided; and, the leg being flexed, the condyles of the femur are pushed forward on to the tibia, and a slice of bone removed. The leg being next completely flexed, the internal lateral ligament is carefully separated from the corresponding semilunar cartilage, through which the tibia can readily be carried forward, and a thin layer be removed with a knife or chisel. The entire synovial membrane is then carefully removed, and openings are made for drainage at the postero-lateral aspects of the joint. Should the patella be extensively diseased, it is shelled out of the quadriceps tendon; but if the cartilage be merely eroded, it is removed. If the patella is sound, the halves are sutured together with strong catgut, and the ligament of the patella and quadriceps tendon are dealt with in a similar manner. The skin is united separately, and antiseptic dressings applied.

It will be observed that the fascia lata, the lateral ligaments, and the prolongations of the vasti muscles to the tibia and fibula are not divided, through which the support to the joint, both during and after healing, is much greater than after other methods of operating. Dislocation of the tibia backward, and tilting of the femur forward are prevented, the quadriceps forming a strong antagonist to the hamstring muscles. Finally, progression is greatly improved, as the quadriceps is neither divided transversely nor shortened, as happens when the usual incisions are made.

These are manifest advantages, and certainly entitle the operation to a fair trial. It is certainly well adapted to cases of strumous synovitis, and cases in which the cartilage and bones are not extensively involved. Whether, as Allingham hopes, it will secure a movable joint, the future alone can determine.

ANÆSTHESIA IN LABOR DOES NOT CAUSE POST-PARTUM HEMORRHAGE.

WE take pleasure in presenting to our readers a paper read by DR. FORDYCE BARKER, last week, at the annual meeting of the State Medical Society of New York. It is devoted to the discussion of the question as to the danger of post-partum hemorrhage being increased by the use of anæsthetics during labor. Possibly a better form of putting the question would be, Is there any liability to post-partum hemorrhage caused by anæsthesia in labor? But whatever the form of interrogatory, the subject considered is one of great practical importance, and we are glad that Dr. Barker has brought the rich treasures of his experience to its elucidation.

He gives unqualified preference to chloroform as the anæsthetic in obstetric practice, and presents some strong arguments for this selection; unquestionably it should be preferred to sulphuric ether, as he states, if there be albuminuria. But albuminurics are only a small class of parturient women, and we certainly believe that the vigor of uterine contractions is less frequently lessened if ether rather than chloroform be used. This, however, is not a material point in the discussion, and we pass from the choice of an anæsthetic to the important statement made by Dr. Barker, that uterine inertia, the fountain of post-partum bleeding, is often but another name for uterine exhaustion, "and this must certainly be much less likely to occur when the nerve-force and vital powers have been saved by the use of an anæsthetic."

While Dr. Barker admits that in some cases chloroform prolongs labor, he asserts, as the result of his experience, that the opposite effect occurs in the majority of women—that is, the labor is shortened by chloroform; and this happy result is a consequence not only of diminished resistance of the os uteri and the perineum, but also of the

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lessened suffering, whether such suffering be the consequence of an intercurrent disease, or arise from extreme sensitiveness and fear.

In the further discussion of the subject he refers to women attended by him in labor, who in previous confinements suffered from uterine hemorrhage though taking no anæsthetic, while they escaped this accident following labors in which anæsthesia was employed. He adds to these cases others in which pregnancy was complicated by grave cardiac disease, and shows that in these, too, no accident followed the use of chloroform in labor, but, on the contrary, the results were most satisfactory.

The paper is one of very great value, and we trust will lead to the more frequent employment of anæsthetics in labor. Could the voice of those who have had the sufferings of childbirth, if not abolished, at least greatly mitigated by the judicious use of an anæsthetic, be heard and obeyed, no woman would endure the martyrdom of maternity without this relief. A distinguished foreign obstetrician once remarked to us that his wife—who had borne six children, and in all her labors used chloroform—never knew of his going to a case of childbirth without giving him the injunction to let the patient have chloroform.

Nevertheless, while advocating anæsthetics in childbirth, let us carefully draw the line between obstetric and surgical anæsthesia. There is truth in the remark made by Depaul, who rejected anæsthetics in physiological labor, that participation on the part of the patient is important; this applies especially to cases of pelvic presentation after the body has been delivered, and it is so important that the head should not linger or loiter in the pelvic cavity, for asphyxia is then inevitable, that it is then most unfortunate if, as a consequence of too deep anæsthesia, no voluntary and vigorous effort can be made by the woman, since the child soon perishes from delay in the delivery. This last fact suggests another question which has been sometimes mooted, Is there any danger of stillbirth caused by the mother's using an anæsthetic in labor? We hope Dr. Barker will at an early day find the leisure to prepare a paper in reply to this question. No man is better qualified to do the work than he; it would be equally useful with that now presented by him, and the conclusions drawn from his large experience would be most acceptable to the profession.

THE MEDICAL DEPARTMENTS OF THE ARMY AND NAVY.

THERE are at the present time no vacancies in the Medical Department of the Army, but at least three vacancies will occur during the present year by the retirement of officers who will have reached the limit of age (sixty-four years), and probably three or four more vacancies will be made by resignation, retirement for disability, or death. In the Medical Department of the Navy there are at present ten vacancies, with the prospect that additional ones will be created by retirement, etc.

For each Department an Examining Board will be convened to fill these vacancies, if possible. As the character and nature of the examinations are about the same for the two services, it would seem, from the number of vacancies in the Medical Department of the Navy, that that service is not as attractive to young physicians as is that of the Army, and the reasons for this are worth considering.

The pay of the Assistant Surgeon in the Navy, for the first five years after his appointment, is, per annum, when at sea, $1700; when on shore duty, $1400; when on leave, or waiting orders, $1000. After five years' service, his pay becomes, at sea, $1900; on shore duty, $1600; and when waiting orders, $1200. There seems to be no good reason for the difference in pay for sea and shore duty.

The pay of the Assistant Surgeon in the Army, for the first five years after his appointment, is, per annum, $1600, and, after five years, $2200. For the first ten years of service, or thereabouts, the pay of the Army medical officer is somewhat greater than that of the Navy medical officer. But promotion is more rapid in the Navy than in the Army, owing to the fact that the Navy has more officers in the higher grades. Thus, of 180 medical officers in the Navy, there are 15 with the rank of Colonel, and 15 with the rank of Lieutenant-Colonel; while, of 192 medical officers in the Army, there are 5 Colonels and 10 Lieutenant-Colonels. The result of this is that while in the Army it requires about twenty years' service to reach the rank of Major and full Surgeon, in the Navy it requires a little less than fifteen years to attain this grade. Taking it altogether, there is very little difference in the pecuniary emoluments of the two services.

The important point in which the Naval Medical Service seems to be less satisfactory than that of the Army is in relation to absolute rank, and, more especially to the position during the early years of service. The Junior Assistant Surgeon in the Navy is not on an equality with commissioned officers. He has no place in the ward-room, and no room to himself. He has a bunk in the steerage, and messes with the midshipmen and the clerks of the Captain and Paymaster, having practically no privacy, and very inferior opportunities for study. The Junior Assistant Surgeon in the Army has his own quarters, his rank is that of first lieutenant, and his position

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is in every way equal to that of other officers of his own rank.

It is this fact which makes the medical service of the Army more popular than that of the Navy, and it is a fact which the Navy Department will do well to consider carefully. It probably requires Congressional legislation to remedy the difficulty. Twenty-five years ago the young Assistant Surgeon in the Navy was a ward-room officer. But under the Act of March 3, 1871, fixing the relative rank of staff officers in the Navy, it is directed that "assistant surgeons shall have the relative rank of master or ensign," that "no staff officer shall, in virtue of his relative rank, have any additional right to quarters," and that "ensigns shall be steerage officers, unless assigned to duty as watch and division officers." There is room for doubt as to the proper interpretation of this law, and until this doubt is removed it is not probable that the Junior Assistant Surgeons in the Navy will receive the consideration to which their education and age justly entitle them. They obtain their education at their own expense, and not at that of the Government as the line officers do, and they are entitled to associate with any officers on board ship. Until this matter is remedied, the Army medical service will be preferred by the young, well-educated physician; and properly so, for the man who can pass either the Army or the Navy Medical Board is, so far as intellect and education are concerned, fully qualified to associate on equal terms with any officers in either of the Government services.

PROTECTIVE INOCULATION AGAINST RABIES.

THERE has been a great deal of scepticism about the method of protective inoculation against rabies introduced by Pasteur, and in the absence of certain essential details it has seemed reasonable to doubt, even in the face of his remarkable results, whether he was dealing with true hydrophobic virus. Nowhere have the criticisms been more pungent or unsparing than in this country, though they have usually lacked the weight which we accord to judgments based on observation, and to opinions supported by experiments.

Last Monday, DR. ERNST, of Harvard University, presented to the Academy of Surgery of Philadelphia the results of his investigations upon Pasteur's method, and the members of the Academy and the profession had the privilege and pleasure of listening to a contribution worthy of the subject. Dr. Ernst obtained his material direct from Pasteur's laboratory, and has carried out in full detail the method there employed. His conclusions confirm in almost every point those of Pasteur, viz., the existence of a specific virus in the animals experimented with, the possibility of attenuating this virus, and the protection afforded by inoculations. Dr. Ernst began the work as a sceptic, and was quite uninfluenced by personal considerations, as he had not studied in Pasteur's laboratory.

The only doubt which exists is as to the nature of the virus with which Pasteur has been working so long. Is it the same as true street rabies? Many of the opponents of the method maintain that this laboratory disease is different from the ordinary rabies, and we have wondered that inoculations have not been made from recent and undoubted cases in the dog. This has, however, been recently done by Prof. Frisch, of Vienna, who has established the identity of the virus with that with which Pasteur works.

DECOCTION OF COTTON-ROOT AS A UTERINE HÆMOSTATIC.

HAVING repeatedly tried cotton-root, in the form of the fluid extract, as a uterine hæmostatic without marked beneficial results, our conclusion was that the remedy was without any great value. The experience of DR. GARRIGUES, as made known in the *Quarterly Bulletin* of the Clinical Society of the New York Post-Graduate Medical School and Hospital, proves that the drug given in the form of decoction produces markedly beneficial results. The following are his directions for preparing and administering it: Three heaping teaspoonfuls of the powdered root are boiled in a pint of water for fifteen minutes; after cooling the preparation is strained: one-third of the decoction is taken in the forenoon, another in the afternoon, and the last at bedtime.

Dr. Garrigues has used the remedy in 139 patients, and in the great majority of cases with more or less decided benefit. He has found that it checks the bleeding from uterine fibroids, and also lessens the associated pain; while in sarcoma and carcinoma it limits, or altogether suspends, for a time hemorrhage. He insists that the remedy should be used in the form of a freshly made decoction, and states that it fails to produce any benefit in about one in ten cases, which is certainly not an unsatisfactory showing.

The attention of the profession will doubtless be directed anew to the use of this remedy by the important and apparently conclusive results obtained by Dr. Garrigues, who, as is well known, is one of our most capable and conscientious observers.

THE new Japanese Pharmacopœia, which has been compiled under the supervision of the Sanitary Bureau of the Home Department, has just been issued, and, by direction of the Home Minister, it comes into use from the first of July next. We understand that Dr. Eykman, who was one of the Commission which framed the Pharmacopœia, is now engaged upon a work similar in scope to our

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National Dispensatory, which is to accompany the official Pharmacopœia, and is to be issued before July, 1887.

The new Pharmacopœia is based on the American, German, and British, and contains 475 articles. The official text is Japanese, but the whole work is also to be published in Latin. The metric system forms the basis of measurements, but the proportions are given in parts by weight.

THE New York State Medical Society held its annual meeting last week at Albany. The following were elected officers for the ensuing year: *President*, A. L. Loomis, of New York; *Vice-President*, A. M. Phelps, of Chateaugay; *Secretary*, William Manlius Smith, of Syracuse; *Treasurer*, Charles H. Porter, of Albany; *Censors*—Southern District, J. S. Warren, of New York; M. B. Chase, of Brooklyn; and W. H. Helm, of Westchester. Eastern District, J. Lewi, of Albany; Thompson Burton, of Montgomery County; and L. McLean, of Troy. Middle District, J. G. Orton, of Binghamton; Robert Frazier, of Oneida County; and I. N. Goff, of Madison County. Western District, Theodore Dimon, of Cayuga County; M. S. Kittinger, of Niagara County; and David Little, of Monroe County. College of Medicine, Syracuse University, Harvey Jewett, of Ontario County.

THE profession will regret to learn of the death, at Charleston, S. C., on February 3d, of DR. J. F. M. GEDDINGS, aged fifty-eight years. He was the eldest son of Prof. Eli Giddings, who for many years was Professor of the Practice of Medicine in the Medical College of the State of South Carolina, and the most conspicuous physician in that State. He inherited much of his father's ability, and succeeded to a good share of his business. He was educated in Charleston, and also in Berlin and Paris. He exhibited during his career a decided partiality to German methods of research and views of pathology, and was regarded as well versed in the literature of the profession, and as proficient in methods of diagnosis. His general scientific and literary attainments were also of a high order.

Dr. Geddings had been almost a life-long sufferer, in his youth from hip-disease, following scarlet fever, and in advanced age from paroxysms of angina pectoris. To a certain extent his usefulness was thus impaired, but he continued to the end a general practitioner, highly valued for his knowledge, his skill, and his devotion to his profession. He had a kind heart, and he was as true as steel to those who trusted him, and was never forgetful of professional responsibility or ethics. His untimely end he had foreseen, and to some extent predicted. Seized with symptoms of pulmonary congestion, or pneumonia, he still struggled on in the discharge of his professional duties up to the day preceding his death. Upon taking to his bed, from the direst necessity, it was soon discovered that a much hypertrophied heart so complicated the situation that there was but little hope of recovery. In less than twenty-four hours his noble heart had ceased to beat.

THE danger of the telephone as a conveyer of infectious diseases has attracted the attention of Dr. A. P. Astvatzatüroff, of Tiflis, and he has called the attention of the Caucasian Medical Society to the risk of infection from the promiscuous use of the mouth-pieces of public telephones. To prevent this accident, he gravely recommends that some disinfectant fluid should be kept at every telephone station, and the speaker should, first of all, dip the mouth-piece into the fluid, and then wipe it with a clean towel.

A CABLEGRAM announces the death of PROFESSOR SCHRÖDER, of Berlin, gynecologist and obstetrician. As the author of the German text-book on obstetrics most widely quoted, and of a manual of gynecology extensively read, he is well known here; while a long and honorable career as an operator and instructor has raised him to a most eminent position in Berlin. His clinic, in its excellent building, is one of the most completely equipped in Germany, and his instruction has been eagerly sought by students from all parts of the world. Professor Schröder was about fifty years of age.

By the vital statistics in Michigan it is found that smallpox has been comparatively epidemic every five years. Thus, in 1872 there were 302 deaths reported in Michigan from the disease; in 1877 there were 102, and in 1882 there were 100. This is the last year of one of these five-year periods, and, according to past experiences, it is thought that we may expect the disease this year. Smallpox is present in New York, Ohio, and Wisconsin, and if immigration is large this year, the danger from it may be increased. The moral is, that this is a good year for vaccination against smallpox.

THE Executive Committee of the International Congress of Hygiene and Demography, which will meet from September 26th to October 1st in Vienna, is pushing forward preparations. The participation of a number of men, well informed upon the topics for discussion, has been already secured. In the two general sessions which will be held, papers and oral statements only will be received; discussions will be referred to appropriate sections of the Congress. Especial stress will be laid upon the scientific value of the meeting, and the element of festivity will occupy only an incidental relationship.

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A CABLEGRAM from London states that the Right Hon. C. T. Ritchie, President of the Local Government Board, announced in the House of Commons last Tuesday the appointment of a committee to consider and report upon the advisability of establishing a hospital for the treatment of persons afflicted with hydrophobia; the institution to be conducted upon the principles established by M. Pasteur in Paris.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, January 12, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. LANGE presented two patients showing the result of

INGUINAL COLOTOMY.

The operation he described as follows: It is a well-known fact that in the operation of colotomy, inguinal as well as lumbar, in which merely a lateral opening in the gut has been made, the contents of the latter will, as a rule, escape, to some extent, into the intestine below the wound, and being forced upward by antiperistaltic action, will prolong and render difficult the process of defecation. He confessed that in nearly all of his cases of colotomy, which were performed according to the above method, the result in regard to this point had been unsatisfactory until he adopted Madelung's plan of cutting across the entire gut, closing the end of the lower portion, and stitching the upper end into the abdominal wound. The result was perfect, so far as concerned defecation; the patient passed feces once or twice a day in a short period of time, and was free from all annoyance during the rest of the day.

From reading a discussion that took place at the Paris "Société de Chirurgie," his attention was called to the possibility of danger eventually arising from retention in the closed portion of gut above the point of stricture; and he, therefore, adopted in his last three cases Verneuil's plan of forming a spur, and thus securing the complete evacuation of the feces through the artificial anus, while at the same time the interior of the lower portion of the gut remains accessible.

The technique of the inguinal operation is as follows: Under strict antiseptic precautions an incision is made parallel with Poupart's ligament, and about three centimetres above its outer third. The peritoneum is opened to the extent of not more than three or four centimetres, a loop of the colon, in the region of the sigmoid flexure, is brought into the wound, and a needle armed with a coarse catgut ligature is passed under the gut at the point of attachment of the mesentery; the ligature is not tied, but serves merely as a handle. A spur is then formed by passing through a part of the intestinal wall on both sides of the mesentery a fine needle threaded with iodoform catgut, the line of stitches being about equal to the thickness of the abdominal wall, or perhaps a little longer. Then by similar sutures the opposite parietal and visceral peritoneal surfaces are brought in contact, so that the peritoneal cavity is entirely shut off from the wound, and the loop of intestine so far as its peritoneal surface had been approximated by stitches, will be secured above the level of the parietal peritoneum. The gut is then opened by an incision, extending in a transverse direction toward the attachment of the mesentery, the edges being united to the integument by a few sutures of silkworm gut. Some iodoform gauze is introduced into the properitoneal space at each angle of the wound: this promotes good drainage during the first twenty-four hours. The wound is dressed with vaseline and iodoform powder.

He had performed this operation three times at the German Hospital, within a period of fourteen days. Two of the patients had inoperable cancer of the rectum, the third an extensive syphilitic stricture. Recovery followed rapidly in each instance, without any unfavorable symptom, and the final result is so satisfactory that he felt justified in recommending this method.

He exhibited two of the patients. In one of them there was observed a slight prolapse of the mucous membrane, which the patient attributed to the fact that she did not that day adjust properly the elastic belt which retains a pad of cotton against the opening. These patients, as well as the third, who could not be present, discharge their feces through the artificial anus. Defecation occurs once or twice daily, and occupies only a few minutes. The lower portion of the gut can easily be washed out, by introducing a thick rubber tube into the rectum, seating the patient upon a chamber, and injecting fluid through the artifical anus. This procedure is an important one, especially in the case of syphilitic stricture, whose history is briefly as follows:

She is a married lady, about thirty-six years of age, who contracted syphilis from her first husband. Dr. Lange treated her for about six years for stricture of the rectum, accompanied with extensive and obstinate ulceration; colotomy was proposed long ago, but she would not consent to it. In October, 1886, a severe pelvic peritonitis developed, apparently due to extension of the ulceration to the intestine above the seat of stricture; there was considerable exudation, and an abscess formed that was evacuated through an incision made on the right side above Poupart's ligament. It was necessary to separate adherent coils of intestine in order to reach a large collection of extremely fetid pus which filled the entire true pelvis. A counter-opening was made in the vaginal fornix. Within several weeks the patient rallied sufficiently to admit of the performance of inguinal colotomy. In spite of her miserable condition, recovery was perfect, and her strength and state of nutrition have been greatly improved. There is still a discharge of pus and blood from the rectum, but there is much less than before.

DR. SANDS remarked that, three days before, he had been summoned to the country to perform colotomy upon a gentleman suffering with cancer of the rectum. He made the usual lumbar incision, and had no difficulty in recognizing the various layers of tissue until the peritoneum was reached. Thinking that he had identified the latter, he proceeded to puncture it cautiously, when a clear serous fluid escaped. Seizing what he supposed was the colon, he proceeded to stitch it into the wound, intending to leave it for twenty-four hours before incising it, in order that the parietal and visceral serous surfaces might become adherent. The

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DR. HALL asked how soon the bowels were moved after the operation.

DR. LANGE replied that at first he allowed them to remain constipated for from ten to fourteen days, but now he orders an enema of oil on the morning of the second day and a laxative the same evening, so as to insure a soft stool on the third day.

DR. SANDS did not see what advantages were claimed for the new operation for hemorrhoids, but he presumed that its purpose was to avoid the hemorrhage which was so much dreaded by the older surgeons. He thought that most of the members of the Society were partial to the use of the ligature, especially in cases in which there was much prolapse; a certain amount of inflammation took place around the ligature which favored adhesion of the intestine to the adjacent parts, thereby guarding against further protrusion. The old operation of Allingham is perfectly satisfactory, and the surgeon, after performing it, can leave his patient, feeling that there is no danger of hemorrhage. The speaker did not attempt to strip off the mass at all, but simply incised the skin around the base of the pile sufficiently to allow the complete burying of the ligature and, the mucous membrane being drawn down as far as possible, the risk of subsequent stricture was avoided. It would require a good deal of argument to induce him to abandon the old operation.

He had practised the method of complete excision of anal fistula in four cases, only one operation being successful. Only small, straight fistulæ can be excised with the expectation of their healing by first intention; in complicated fistulæ it is necessary to remove a good deal of tissue, which, in the vicinity of the anus, is particularly undesirable in view of the subsequent cicatricial contraction. The operation is certainly not adapted to all cases. Fistulæ can be cured by simply scraping out the tract.

DR. LANGE admitted that the method is not applicable to every case, but it can be employed successfully even in cases of tortuous sinuses extending high up the rectum; moreover, the result is equally good when the wound is not closed, but is allowed to heal by granulation. It is important, however, to bring the edges of the mucous membrane in apposition, as healing is retarded by contact with fecal matter.

THE PRESIDENT presented a patient showing the results of

EXCISION OF THE ANKLE-JOINT,

whose history was as follows:

Annie Duval, aged eighteen, colored, was admitted to St. Luke's Hospital March 11, 1885. About a year before her admission she had sprained her ankle severely, and suppurative synovitis followed; the pus had been evacuated by incisions. Her family history was phthisical. On admission, her ankle was swollen and tender, and evidently contained fluid; a sinus behind the internal malleolus communicated with the interior of the joint. On the 31st of March he excised the joint, making a curved incision behind each malleolus, and removing the lower end of the tibia and fibula by a horizontal section, as well as the entire upper surface of the astragalus by a parallel cut. The limb was put up in a permanent dressing covered with plaster of Paris, and so retained till April 28th. The wound healed perfectly in eight weeks, since which time the patient has walked with ease, limping only slightly. Slight subcutaneous suppuration occurred recently, which healed at once after scraping. Motion is now quite free, and the joint is strong. The shortening amounts to seven-eighths of an inch.

THE PRESIDENT also showed a

CASE OF ANEURISM OF THE INNOMINATE ARTERY TREATED BY LIGATURE OF THE CAROTID AND SUBCLAVIAN.

Martin Cavanagh, an Irishman, aged thirty-five, was admitted to St. Luke's Hospital March 9, 1886. He was probably syphilitic. Two weeks previously he had noticed a tumor on the right side of the neck, just above the inner end of the clavicle; a week later he became hoarse, and at the time of his admission he could speak only in a whisper. The tumor was considered to be an aneurism of the innominate artery, involving probably the commencement of the carotid and subclavian arteries. Pulsation was very marked, and was readily felt to affect the upper end of the sternum, the inner end of the clavicle, and the first two intercostal spaces. On April 16th it was found that the tumor had grown decidedly, and then measured three and three-quarter inches transversely, and extended to a point a little above the cricoid cartilage, displacing the trachea to the left. He considered the hoarseness to be due to tension of the right recurrent laryngeal nerve. The patient was kept in bed, and received ten grains of iodide of potassium three times a day until April 16th, during which interval the tumor became somewhat larger. He operated on April 20th, applying a catgut ligature to the carotid in its upper portion, and another to the third part of the subclavian. Pulsation almost entirely ceased in the tumor. The wounds healed very rapidly. On May 26th, the patient was put upon strict diet, according to Tufnell's plan, and was kept in bed until July 28th, since which time he has been about the ward, and has taken ordinary diet. The tumor has steadily diminished in size, and is now considerably less than one-fourth of its original size, the wall of the sac being thick and firm. The voice is only slightly hoarse.

TORONTO MEDICAL SOCIETY.

Stated Meeting, January 5, 1887.

THE PRESIDENT, DR. MCPHEDRAN, IN THE CHAIR.

DR. TEMPLE showed

THE UTERINE APPENDAGES

removed on account of purulent inflammation of both Fallopian tubes. The patient, æt. thirty-three, had been married eleven years, was never pregnant, began to suffer one year after marriage. During the last year was almost constantly confined to bed, as any exertion caused severe pain in the pelvis lasting several days, probably due to attacks of circumscribed peritonitis. She was a thin woman, and the abdomen was enlarged equal to the fifth month of pregnancy. On vaginal examination the uterus was found pushed forward and upward so that the cervix could be felt with difficulty behind the pubic symphysis. The Douglas cul-de-sac was filled with a fluctuating mass. The right tube could be ac-

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curately mapped out by bimanual palpation; the left could not be so well outlined. On opening the abdomen the mass presented the appearance of a fibro-cyst. The structures were greatly matted, the adhesions being separated with difficulty. The right tube burst during separation and about eight ounces of pus escaped into the pelvic cavity. The right ovary was removed; the left could not be found; it had probably become absorbed from pressure. The patient made satisfactory progress, the temperature not exceeding 101° F.; usually varying from 99° to 100° F.

DR. ROSS exhibited a

PLACENTA FROM A CASE OF TWIN PREGNANCY,

in which the cords, which were attached to the placenta very close together, were inextricably knotted. Death of both fœtuses had occurred some days before birth.

DR. MCPHEDRAN exhibited the stomach, lung, and œsophagus from a case of

GASTROSTOMY FOR MALIGNANT STRICTURE OF THE ŒSOPHAGUS,

with the following history:

Eliza S., aged forty-one, unmarried, first consulted him in April, 1886. Her digestion had always been weak but otherwise her history was good, as was also her family history. At Christmas, 1885, she began to experience pain behind the lower part of the sternum and in the mid-dorsal region, with difficulty in swallowing. The pain was not increased by food. By March she was unable to swallow solids, and much of the liquid was returned as soon as swallowed. Mouthfuls of clear mucus were frequently ejected from the œsophagus without nausea or distinct act of vomiting. A sound gently introduced, was arrested eleven inches from the upper dental arch, showing a stricture about three inches from the cardiac orifice of the stomach. A No. 10 catheter, English scale, passed fairly easily but caused some pain; after a few days a No. 12 passed, but beyond that the stricture could not be dilated. A catheter with a funnel attached was introduced four times daily for the purpose of administering nourishment and for a short time she improved in appearance. The stricture gradually contracted, so that by June 1st, only a No. 8 catheter could be used, and even it caused so much pain that it was evident she could not continue to take nourishment much longer in this way. Rectal alimentation was resorted to, but each enema induced such severe colic that they could not be continued. As she suffered much from hunger and thirst, especially the latter, gastrostomy was proposed, the risks and disadvantages being fully explained to her.

After some hesitation she decided to submit to the operation and the first stage was done on the 11th of June. An oblique incision, three inches long, was made three-fourths of an inch below and parallel to the eighth and ninth costal cartilages till the sheath of the rectus was opened, when the direction of the incision was changed to that of the fibres of that muscle, so as to secure the benefit of any sphincter action it might subsequently exercise. On opening the peritoneum, the margins of the liver, gastrohepatic omentum, and stomach were exposed, the latter contracted and overlapped by the omentum, which was traced up to the under surface of the liver in order to make certain of the stomach. The stomach was then drawn downward and to the right, a fold of it drawn through the abdominal opening and transfixed by two harelip pins about one-half inch apart and lying across the line of the skin incision. The pins transfixed only the serous and muscular coats. Silk sutures were now introduced so as to bring together the peritoneal as well as the superficial parts of the wound closely around the protruding portion of stomach; but no sutures were introduced into the stomach, it being held firmly in place by the pins. The wound was freely dusted with iodoform, over which dry gauze and salicylated wool were placed and held in position by a broad flannel bandange.

She reacted satisfactorily after the operation, ether being used. The dressing was not changed till the fifth day, when union was found to have taken place by first intention. The gauze covering the protruding portion of stomach was so firmly bound down by plastic effusion that its separation caused a little breaking down of the union between the stomach and the superficial part of the wound, which took a few days to unite.

Temperature and pulse were normal throughout, and the only discomfort complained of was a little soreness, for a few days, at the wound on moving the body. She was nourished by enemata for three days; after which some food was given by the stomach tube which was, at first, more easily introduced than before operation.

The stomach was opened on the 21st of June, the tenth day after the preliminary operation. A narrow blade was introduced between the pins and then a No. 6 catheter passed into the stomach, a large syringe attached to it, and three ounces of milk slowly injected. The catheter was left in, a compress being placed around it. The opening of the stomach caused no pain or discomfort beyond a little nausea, no anæsthetic was therefore used. The size of catheter was gradually increased until a soft rubber tube, equal to No. 18, English scale, was introduced. From the first there was some trouble from leakage around the tube with some excoriation about the opening. With this exception she experienced great relief through the operation. She gained strength, and was able to walk and drive out with comfort—the pain in the chest became much less and was often absent for days. Her condition was very good from July to October, her chief complaint being of the leakage around the tube and the profuse ejection of mucus from the œsophagus, and occasional hemorrhages. Toward the end of November she began to fail rapidly, though still taking food freely. The oozing increased as her strength failed. During December she was confined to bed, cough developed and increased, with increasing dyspnœa. There were, at times, free hemorrhages. Her weakness increased till she died, on the 28th of December, six months and eighteen days after the operation was performed.

On post-mortem examination the seat of operation showed firm union between the wall of the stomach and the abdominal wall, the margin of the liver being also adherent, the fistulous opening was about one inch from the pylorus. The stomach was much dilated, and the walls thinned as compared with its condition at the time of operation; it now extended two inches below the fistulous opening. The upper part of the œsophagus was dilated; the lower five inches were converted into a sloughy cavity filled with offensive grumous material.

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The growth was adherent to the bronchi, aorta, and spine; the inner surface of the aorta showed signs of invasion. The lungs showed no signs of deposit, but their back parts were in an advanced state of hypostatic pneumonia, which was doubtless the immediate cause of death.

The objects aimed at by operating in this case were fully attained, viz., first, and chiefly, the relief of suffering from hunger and thirst; and secondarily, the prolonging of life. The oozing from the fistula was disappointing; it could probably have been avoided by introducing the tube each time food was given instead of retaining it permanently in the fistula. For the purpose of giving food an ordinary enema syringe could be used, a funnel being attached to one end and a small tube to the other after the method recommended by Bryant.[1]

Gastrostomy, at best, is, unfortunately, only palliative in malignant disease. Nevertheless, as the dangers attending it, as in abdominal sections generally, are now comparatively slight, almost *nil*, in fact, since its division into two stages, it is one worthy of careful consideration in all cases of œsophageal stenosis. During the last few years all the deaths from it have probably been from prostration on account of the operation having been too long postponed. Of thirteen cases operated on by Dr. Kun, of Moscow, ten recovered and three died, one from perforation of the left bronchus on the second day, another from hemorrhage on the eighth day, and the third from prostration on the twelfth day.[2] Suturing the transverse colon instead of the stomach is a possible source of danger, and has occurred to some of the most eminent surgeons.

In this case the stomach was secured after the method practised by Boyce Barrow, of the West London Hospital.[3] This method is as efficient as, and more expeditious than by the double circle of sutures recommended by Howse, to whom is due the credit of having rendered the operation safe by dividing it into two stages. Barrow's directions were departed from in that only the serous and muscular coats were transfixed by the pins; this method, while rendering the subsequent opening of the stomach more difficult on account of the mucous membrane receding so far from the surface, probably secures greater certainty of asepticism in the wound, as septic matter may find its way along the pins from the stomach if these pierce the mucous membrane.

The sutures for closing the wound might, with advantage, be passed before transfixing the stomach with the pins, as the protruding portion would not be in the way. After passing the sutures the stomach could be secured and the sutures then tied; those sutures lying in the way of the protruding stomach should be divided and used to bring the peritoneum and skin together on each side, and thus present a broader peritoneal surface for union to the stomach. This union takes place very rapidly; it has been found firm in nineteen hours in one case, in another in twenty-four hours, and in a third in thirty hours.[4] This being so, rectal alimentation can, in urgent cases, be supplemented by food to the stomach very shortly after the preliminary operation. If the œsophageal stricture were impermeable the stomach had better be opened; in rare cases it might be advisable to do so at once on securing the stomach, in order to prevent fatal prostration.

[1] Practice of Surgery.
[2] Annals of Surgery, September, 1886.
[3] Brit. Med. Journ., vol. ii., 1884.
[4] Gross: THE MEDICAL NEWS, December 1, 1884.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 3, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

ADDRESS BY THE PRESIDENT.

DR. JACOBI, on entering upon the duties of President for another two years, said that the position was not simply an honor, or otherwise he would have declined it, as there were others more worthy of this distinction; but the office was also one of grave responsibilities, and he was willing to submit to these. In his past course he had endeavored to select as subjects for the scientific discussions of the Academy such as were of general interest to the profession; leaving to the various sections, for the most part, those that were of special character. He had also taken particular pains to enlist the young men, with their enthusiasm and spirit of earnest endeavor.

In speaking of the present prosperity of the Academy, he referred to the development of nine distinct sections, now all in active operation, and stated that one hundred and twenty names had been added to the Fellowship of the Academy during the past year. During the year, also, no less than $100,000 had been donated to the building fund, and the need for more extensive and suitable accommodations than the present ones was pressing.

A COMMITTEE ON BUILDING SITE

was appointed, consisting of Drs. George A. Peters, Frederick A. Castle, and the President; who represented respectively the Council, the Board of Trustees, and the Academy at large.

DR. JOHN H. GIRDNER read a paper on

THE DETECTING AND LOCATING OF METALLIC MASSES IN THE HUMAN BODY BY THE INDUCTION BALANCE AND THE TELEPHONIC PROBE.

The induction balance, which was the invention of Professor Alexander Graham Bell, of Washington, he said first suggested itself in the summer of 1881, after the shooting of President Garfield. The attempt was made to locate the ball in his case by this means, but, owing to the crudity of the apparatus, the lack of experience in its use, and the disturbing element due to the presence of a large steel mattress on which the patient lay, which was unknown at the time, the result was unsatisfactory.

Having stated that in his opinion this apparatus would be indispensable in time of war, Dr. Girdner proceeded to describe it. An ordinary bichromate battery of six cells is used. An interrupted current is necessary, and about 600 interruptions per minute have proved the most useful for the purpose. For the induction balance two currents are required, the primary and the secondary or induced, and each current passes through two coils of wire (No. 25), one of which is twice the size of the other. The two larger coils, which are simply laid over each other, and fastened on a large

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disk of wood, provided with a handle, which is called the *explorer*, and the coil of the induced current is connected with a telephonic receiver.

When no metallic substance is in the vicinity of the explorer, no sound whatever is heard by the ear placed at the telephonic receiver; but when the explorer is brought near a metallic mass the presence of the latter is indicated to the ear by the sound heard in the receiver; this sound increasing in intensity as the explorer approaches nearer and nearer the mass. The larger coils were called the exploring coils and the smaller the adjusting coils. The greatest intensity of sound is reached when the centre of the explorer approaches the nearest to the metallic body. Fortunately for the successful application of the instrument, experiment has shown that living tissue is the best conductor of the sound.

The telephonic probe was also the invention of Professor Bell. A telephonic receiver is connected with a piece of ordinary steel laid upon the surface of the body, and also with a long needle, which is to be inserted into the flesh at the point indicated by the explorer as that at which the sound in the telephonic receiver of the induction balance is most distinct. As soon as the point of the needle comes in contact with the metallic mass, a sharp click is heard in the receiver.

Colonel Clayton, a gentleman who was shot in the chest at the battle of Cedar Mountain during the late war, and still retains the ball, presented himself as a subject for illustrating the *modus operandi* of the induction balance, and by means of this apparatus the location of the ball was easily determined to be at the junction of the clavicle with the sternum.

In order to demonstrate the working of the telephonic probe Dr. Girdner employed a piece of beef, in which a mass of lead was deeply embedded, and the experiment of detecting its precise location was entirely satisfactory to all who had the opportunity of personally testing the apparatus.

DR. NEWTON M. SHAFFER read a paper on the use of

TRACTION IN THE TREATMENT OF CLUB-FOOT,

with a consideration of some of its mechanical principles involved, and a description of the antero-posterior and lateral traction apparatus. He said that more than ten years ago he commenced a series of experiments in connection with the treatment by traction, and that the results of these early experiments were embodied in a paper which he had published in the autumn of 1878. This was however, merely a provisional paper, and since the time of its appearance he had made many improvements in the apparatus employed. Further experience had fully convinced him of the great importance of the "pusher" principle.

Dr. Shaffer illustrated the normal foot movements by a series of diagrams. There is only one centre of antero-lateral rotation in the ankle-joint, he said, and this centre of motion is situated below the malleoli. In order to correct the deformity of talipes equinus the heel must be made to move downward and forward, and the toes must move upward and backward. Then much of the astralagus rotates around the same centre of rotation as the heel and toes, and it rotates upward and backward. The normal movements of the foot should be exaggerated, on account of the resistance which is met with.

In the conventional club-foot apparatus there are various defects. Thus, as the anterior part of the foot rotates upon its artificial ankle-joint centre, or, in other words, as we crowd the os calcis into the heel-cup, and attempt to flex the foot, the heel, unless restrained, slips forward. The attempt is made to control this movement by tying the heel down to the foot-plate and in the heel-cup, with the heel-strap. If, after this heel-strap is tied, a considerable pressure be applied in the direction of flexion (even, in many cases, after tenotomy), the further tendency of the heel (being restrained in front by the heel-strap) is to slip upward and backward away from its artificial annular ligament, ultimately, in many cases, resting on the tip of the heel-plate which forms the cup, When this occurs, all control over the foot is lost, as it turns toward that side upon which the contractions exist. One of the direct effects of mechanical flexion, as applied in the customary forms of apparatus, to overcome either a post-tibial or a plantar contraction, is to crowd the tarsal bones together.

Dr. Shaffer then described his antero-posterior traction apparatus, by means of which, through the agency of an arm and screw, any desired angle of flexion or extension could be secured. The Scarpa heel-cup, which had been so long and universally employed, he said, is not necessary here, and a semicircular opening is provided for the descent of the heel. In connection with the traction heel-strap an astragalar strap is worn over a pad, and this astragalar strap is to be loosened in order to allow of rotation. When plantar contractions are to be overcome, however, the astragalar strap should not be loosened.

In equino-varus the lateral pushing force has many advantages over the lateral pulling force. Simple, uncomplicated equino-varus, he considered a rare condition. The lateral traction apparatus, which he also described and exhibited, he said, acted as a lateral pusher (evicting the foot), brought the foot up into a position of flexion, and caused the anterior portion of the tarsus to rotate outward.

When we have to do with confirmed deformity it is necessary that sufficient force should be used to overcome the resistance present; and he spoke of the great benefit which he had seen derived from the employment of exaggerated traction maintained for a few seconds or minutes, according to the degree of tolerance present, and repeated at frequent intervals. In his experience, excoriations occurred only as the result of neglect on the part of the attendants.

When the traction apparatus is used, the knife is unnecessary in many cases where it would ordinarily be required. There are, however, a certain number of rare cases which do not yield to simple traction, and in these tenotomy is demanded. In such instances, however, the patients are much more liable to complain of pain and discomfort from the wearing of the apparatus (after tenotomy), than in those which are treated by means of traction only. While there are a few cases which will not yield to traction either with or without tenotomy, Dr. Shaffer said he knew of no apparatus so efficient and complete as these traction shoes. In conclusion, he stated that nine years ago he

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had predicted that tenotomy would be much less frequently resorted to than formerly, and he was glad to say that this prediction had been realized, as the foot is a more natural one when no cutting is required.

DR. RIDLON said that he had not been able to get as good results with the lateral shoe as Dr. Shaffer himself, who was remarkably skilful in applying his traction apparatus. Again, there are certain cases in which the use of traction is not followed by good results. We should be able, he thought, to judge at the beginning whether in any case traction would be beneficial or not, and the test of "point-pressure" enabled us to say whether or not tenotomy was called for. Dr. Shaffer, on the other hand, is in the habit of first trying stretching for a time, and then, if the result is not satisfactory, he performs tenotomy. It is better, in his opinion, to cut at once in those cases in which the operation is necessary.

DR. KETCH said that he had had an experience of over nine years with the traction shoe, and he desired to call attention to two points: First, the possibility of treating many cases of club-foot without an operation of any kind, and, second, the fact that the benefit to be derived from the principle of the use of intermittent force, for the credit of the introduction of which we are indebted to Dr. Shaffer, is not sufficiently appreciated. As early as 1885 Dr. Shaffer found that the danger of relapse after tenotomy, and its so-called after-treatment, was very much less if the traction apparatus was used.

DR. A. B. JUDSON said that it was clear that this apparatus of Dr. Shaffer was capable of exerting great force, and, therefore, it was especially necessary that it should be in careful hands. If, however, cases of club-foot are well managed from the first, this violence would not be required. By this he did not mean to reflect in any way upon the method of treatment described; but simply to refer to the desirability of an enlightened opinion in the community upon such subjects.

In closing the discussion, DR. SHAFFER said that he was at a loss to understand the want of success in the use of the lateral shoe, to which reference had been made. The application is simple, and it is only necessary that the shoe should accurately fit the deformity. The trouble was, he thought, that too much was attempted at first. The process of treatment must be a gradual one, with no haste and no violence. The method is a very easy one when the apparatus is perfectly adapted to the case, and just as much or as little power as is required could be used with it. In regard to the matter of "point-pressure," he said that some of his best results with traction alone had been obtained in cases in which this so-called test indicated tenotomy. For his part, he knew of no guide by means of which he could tell at first whether cutting would be required.

NEW INVENTIONS.

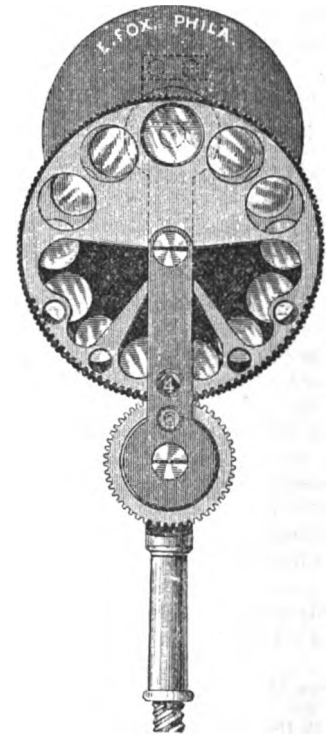
A MODIFIED LORING OPHTHALMOSCOPE.[1]

BY B. ALEX. RANDALL, A.M., M.D.,
OF PHILADELPHIA.

A DESCRIPTION of a disk of cylindrical lenses as an addition to the ophthalmoscope was published by the writer in THE MEDICAL NEWS of October 17, 1885, and the practical value of the addition, as well as its applicability to many of the usual forms of the instrument, was there pointed out. Some minor inconveniences in its application to the newer Loring ophthalmoscope, for which it was more especially designed, were also noted: and a modified model of that instrument, then in course of construction, was promised as free from these and other disadvantages. This new model, having met the demands of practice, is now presented.

As indicated by the cut (Fig. 1) which shows it in its simpler form, without the disk of cylindricals, the instrument corresponds closely in its dimensions to the smaller model of Dr. Loring's ophthalmoscope. The main disk has twelve openings, one vacant and the others containing spherical lenses, 7 mm. in breadth, from + 5 to —6 D.; the supplemental disk or "quadrant" contains + 0.5 and + 13 D. on one side of its zero-opening, and the corresponding concave lenses on the other. The main disk is rotated as usual by the pressure of the finger upon its milled edge: the supplemental disk articulates with a cogwheel below it in the handle, and is moved by its rotation — spring-stops serving to centre all lenses accurately at the sight-hole. The numbers indicating the lenses in use appear at the openings near the handle, where they cannot be hidden by the addition of the disk of cylinders. This latter has been sufficiently described and its means of application to the instrument is indicated by the dotted lines of Fig. 1. It is represented in Fig. 2 as added to the usual Loring ophthalmoscope. The convex lenses thus given in unbroken series are + 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18; and the concaves are the same with the addition of

FIG. 1.



[1] Presented at the meeting of the American Ophthalmological Society, 1886.

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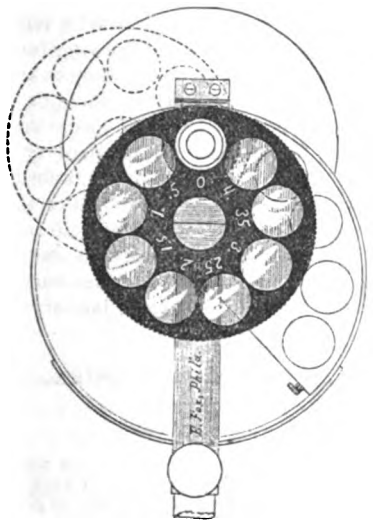
—6.5 and 19—a series ample for all but exceptional cases; while the quadrant might be made to accommodate a —24 if desired, and thus extend the series of con-

FIG. 2.



caves to —30 D. The cylindrical lenses are *concaves* from 0.5 to 4, and furnish all ordinary sphero-cylindrical combinations.

The maximum thickness of the instrument at the sight-hole, when the cylinder-disk is added, is 10 mm., and the weight is 47.4 grammes—as compared with 7.75 mm. and 45.2 grammes of the Loring. Without the cylinders it is practically identical with it in thickness, weight, and balance—a point worth emphasizing. The cost is but slightly greater; and the increased complexity seems fully justified by the increase in efficiency.

The instrument was designed in most respects six years ago, before the appearance of other models, such as Dr. Noyes', embodying similar ideas; but is offered solely as an adaptation of the Loring instrument to the needs which the writer has felt in his own work. The practical value of the arrangement which makes the 0.5 lenses *self-centring* and always available at a touch, will be contested by no one who tries to make careful measurements with the ophthalmoscope; and, although but a small part of the long continuous series of concaves or convexes is wanted at any one time, every ophthalmoscopist has experienced the awkwardness of working with the lenses at the "break," or transition from the single lens to the compound lenses of the double disk, and will find the new model a convenience in these respects. The disk of cylinder-lenses had already proved its practical value when attention was called to it, and an additional year of use has more than confirmed the favorable opinion then held.

The change of the lower journal of the tilting-mirror into a spring-clip, permits the ready removal of the usual concave mirror and the substitution of a plane or weak-light mirror: while without it, the instrument is more readily utilized as an optometer (in the absence of the case of test-glasses), either for the subjective determination of the refraction or for measuring by neutralization the strength of other lenses—a use in which the ophthalmoscope has often proved valuable. As constructed by Mr. Fox, of 17th and Chestnut Sts., this new model will compare not unfavorably with the most perfect examples of Dr. Loring's ophthalmoscope.

NEWS ITEMS.

A PRIZE ESSAY ON HAY-FEVER.—The Chairman of the Committee on Scientific Facts, of the United States Hay-fever Association, asks leave to submit the following to the members, and to the medical fraternity, and to all who are interested, whether as sufferers or students of this increasing malady:

At its last meeting, September, 1886, at Bethlehem, N. H., the Association decided to offer a prize for the best essay from a competent source, preferably a physician, on some question relating to *Æstivis*, or Hay-fever. The amount is necessarily small; but as the accepted essay will be published in the Association's report, when the extent of its circulation, and the character of those whom it will reach shall be considered, it is thought that the successful treatise will give to its author a reputation worth the effort.

In order to carry out the above the following is announced officially:

1. Subject of the essay, Hay-fever. (a) Its Pathology. (b) The predisposing, and the aggravating causes. (c) Advice to the sufferer.

2. The essay not to exceed *four thousand words*, and to be as practical and non-technical as possible.

3. The manuscripts to be received at the office of Samuel Lockwood, Freehold, New Jersey, not later than April 30, 1887.

4. Each manuscript to have a motto under the title, and to be accompanied with a sealed letter containing said motto, also the name and address of the author. These letters not to be opened until after the award is decided.

5. The prize to be $25, The accepted essay to be published immediately in the Association's annual report, one hundred copies to be given the author.

THE SPRINGFIELD, MASS., CITY HOSPITAL has had bequeathed to it, in the will of the late Mr. William Merrick, a sum stated to be between $75,000 and $100,000. Together with the $25,000 received from Mrs. Chester W. Chapin, this places the institution on a good footing, and it is understood that the trustees are looking about for a new building, the present property being at too great a distance from the business portion of the city.—*New York Med. Journal*, Jan. 29, 1887.

DR. THOMAS E. MCARDLE has been compelled, on account of ill health, to resign the position of Professor of Surgery in the Medical Department of the National University, Washington, D. C., and Dr. Philip T. Harvey, U. S. Army, has been appointed to fill the vacancy.

A NEW GERMAN MONTHLY DEVOTED TO THERAPEUTICS has just appeared, edited by Liebreich, Langgaard, and Rabow. Its scope embraces original communications from celebrated clinicians, reports of the discussions and actions of societies, descriptions of new remedies and methods of treatment; its first number contains interesting matter from Kohls, Hausmann, Veit, Casper, Liebreich, and others.

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BERLIN DISINFECTION STATIONS.—These stations, established November 1st, have done excellent work. The populace has availed itself of these establishments independently of police regulations.

From November 1st to December 15th, 10,593 pieces were disinfected, comprising bedding, clothing, furniture, and all articles of personal use. The material for disinfection came from 261 persons, and the cases were mostly diphtheria and scarlatina.—*Berliner klinische Wochenschrift*, January 17, 1887.

PROFESSOR JOHANN RUDOLPH RANKE.—The University of Groningen is just now mourning the loss by death of the much respected Professor of Surgery, Dr. Johann Rudolph Ranke, who, though a foreigner, seems to have endeared himself to all classes of the people. For the last eighteen months he had suffered from the effects of blood-poisoning, which had caused him continual severe pain; but he stuck most heroically to his work to the last, teaching from his bed students who were about to present themselves for examination, and, on days when he was somewhat better, going in a bath-chair to the university or hospital. Only three days before his death he performed an important operation.

THE VIENNA HOSPITAL.—From a statistical report of the great Vienna Hospital, which has just been published, we learn that during 1885, 26,448 patients were treated there. Of these, 13,000 were discharged cured and 4000 improved. Some were removed to other institutions, as many as 1000 being sent to lunatic asylums and more than 500 to the smallpox hospital. There were 2898 deaths. The total number of patients during the last hundred years was 1,654,729, amongst whom the mortality was 237,218, or 14.33 per cent. In 1885, which was the first year of the second century of the hospital's existence, the number of admissions was 8000 in excess of the annual average for the preceding hundred years, and 3300 in excess of that of the preceding ten years, the mortality being 0.95 less than that of the century, and 0.63 less than that of the last ten years.

THE HIGHER EDUCATION OF WOMEN.—In the second Lettsomian Lecture, delivered by Dr. Langdon Down, before the Medical Society of London, on Monday last, some interesting remarks fell from him in reference to the effect of the higher education of women in the production of feeble-mindedness in their offspring. Coming from so good an authority, and based as they are on an experience of infantile mental affections extending over so long a period of time, they have a scientific as well as a social interest, which justifies attention being called to them. No objection, he said, was shown to women being taught everything relating to art, music, or their emotional life, but directly attempts were made to cultivate their judgment, to teach them how to reason, to inculcate habits of self-control, the proposal was met by clamors, which, in his opinion, were not based on experience, and, so far as the etiology of feeble-mindedness was concerned, were likely to be prejudicial. Still more emphatic was Dr. Down's assertion that if there is one thing more certain than another about the production of idiocy, it is the danger which arises from the culture of only one side of woman's nature. The whole gist of the matter lies in the necessity of proportioning the education given to the physical and mental calibre of the recipient. The average female mind is often assumed to be inferior in power and compass to the average male intellect, but the difference is not, according to Dr. Langdon Down, such as to render it either desirable or necessary to restrict female education to the narrow limits of the drawing-room and the kitchen. Reliable statistics on the subject are not forthcoming, and it is even difficult to imagine any which could command acceptance. The observance of ordinary care, and the mandates of elementary physiological knowledge, will, in all probability, afford as great a safeguard in this direction as they do in the region of athletic exercise for girls. Either or both may be overdone, but if this occur, it is only in consequence of inattention to, or ignorance of, this very important subject.—*British Medical Journal*, January 22, 1887.

NOTES AND QUERIES.

A CORRECTION.

After my communication on Chloroform and Ether Deaths (in the Correspondence of THE NEWS for last week) had left my hands, I discovered that in the transcription of my rough notes the word "detailed" had been omitted in my comment on Dr. Reeve's Case IV. It should read, "there is no detailed mention of an autopsy."

I have had the curiosity to look up this case, which is in the *New York Herald* for Nov. 22, 1875. The operation was done at a homœopathic college, and the physician who had his hand on the pulse testified that it was good at the moment the face turned blue. At the post-mortem, made by Drs. Cushman and T. C. Finnell, there was a strong odor of ether perceptible; the brain, lungs, liver, and kidneys were congested; the heart small and fatty. Dr. Finnell, at the coroner's inquest, ascribed the death to the action of ether on the fatty heart.

It seems to me that the supposition of the Editor of the *Boston Med. and Surg. Journal*, that the death was due to the presence of blood in the trachea, is more likely to have been correct.

JOHN H. PACKARD, M.D.

PHILADELPHIA, February 7, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 1 TO FEBRUARY 7, 1887.

FRYER, BLENCOME E., *Major and Surgeon.*—Ordered to Fort Lowell, Arizona Territory.—*S. O. 20, A. G. O.*, February 4, 1887.

LORING, L. Y., *Captain and Assistant Surgeon.*—Leave of absence still further extended three months on surgeon's certificate of disability.—*S. O. 29, A. G. O.*, February 4, 1887.

BRECHENSIN, LOUIS, *Captain and Assistant Surgeon.*—Granted leave of absence for four months, with permission to go beyond sea. To take effect when his services can be spared by his department commander.—*S. O. 28, A. G. O.*, February 3, 1887.

POWELL, JUNIUS L., *Captain and Assistant Surgeon.*—Granted leave of absence for two months, to take effect when his services can be spared by his department commander.—*S. O. 24, A. G. O.*, January 29, 1887.

BARROWS, C. C., *First Lieutenant and Assistant Surgeon.*—Ordered for temporary duty as Post Surgeon at Fort Barrancas, Florida, to take effect upon the expiration of his present leave of absence.—*S. O. 24, Division of the Atlantic*, February 3, 1887.

PHILLIPS, JOHN L., *First Lieutenant and Assistant Surgeon.*—Leave of absence further extended one month.—*S. O. 29, A. G. O.*, February 4, 1887.

WOOD, LEONARD, *First Lieutenant and Assistant Surgeon.*—Ordered to proceed to these Headquarters, and report to the Department Commander for temporary duty.—*S. O. 12, Department of Arizona*, January 31, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, FEBRUARY 19, 1887. No. 8.

ORIGINAL LECTURES.

THE MIDDLETON GOLDSMITH LECTURES.

Delivered under the Direction of the New York Pathological Society.

BY M. ALLEN STARR, M.D., PH.D.,

PROFESSOR OF NERVOUS DISEASES IN NEW YORK POLYCLINIC.

LECTURE II.

January 28, 1887.

MULTIPLE NEURITIS, AND ITS RELATION TO CERTAIN PERIPHERAL NEUROSES.

(Continued from page 174.)

2. *Multiple neuritis consequent upon infectious diseases*—There are a number of infectious diseases which are especially liable to be followed by the development of nervous symptoms. These are diphtheria, variola, typhoid, typhus, and scarlet fever, malarial fever, and tuberculosis. The nervous affection usually appears shortly after the period of convalescence in the acute fever. The disease may consist of a simple paralysis of the muscles in the region of distribution of a single nerve. It may affect several nerves on both sides of the body symmetrically. It may even paralyze two or more limbs. It occasionally produces sensory as well as motor symptoms in a single nerve-trunk. It may even cause a general sensory and motor paralysis of as widespread and complex a kind as that produced by chronic alcoholism. Sometimes the symptoms are chiefly of a sensory kind, and consist exclusively of pains, numbness and anæsthesia, or hyperæsthesia, in the legs, or of a loss of the muscular sense, in which case a true ataxia is the most noticeable symptom. Thus it is evident that the poison of an infectious disease may act as powerfully upon the nervous system as any other form of poison known.

It is only since the clinical pictures presented by multiple neuritis have been recognized that a question has arisen as to the part of the nervous system affected in these cases. Formerly all such phenomena were referred to central lesions; and undoubtedly in many cases this was justified, since autopsies are not wanting to prove that anterior poliomyelitis, diffuse myelitis, and hemorrhages into the cord and brain may follow the acute fevers. There are, however, many conditions which do not correspond to the types of disease produced by central lesions, and which recover with a rapidity impossible were the brain or spinal cord involved. It was these cases which raised the question of some possible affection of the peripheral nerves. And careful investigation has been rewarded by the actual discovery of lesions in them.[1]

(*a*) Diphtheritic paralysis is probably more common than any other of these forms of neuritis. As is well known, it is usually the soft palate to which the paralysis is limited, and, as a result, difficulty in swallowing, and in speech are the most prominent symptoms. Bernhardt has found[1] that in the large majority of cases of this kind there is a loss of the patella tendon reflex, but whether this indicates any general affection of the peripheral nerves he does not venture to state. The limitation of the paralysis to the palate has been explained by supposing that the poison of the disease has a direct action upon the terminal filaments of the nerves, which in this position are, as it were, dipped constantly in the poison. This theory is supported by a case in which paralysis of the abdominal muscles was associated with diphtheritic inflammation of the navel in a newborn child. But the more serious cases prove that through the blood the poison may be carried to nerves far removed from the seat of the diphtheritic inflammation.

And the following cases demonstrate the widespread symptoms which such general poisoning can produce, as well as the nature of the lesion.

Observation XIV.—Marie S., aged thirteen, after suffering for a few days from a slight sore throat, found herself unable to see clearly because of the development of a paresis of accommodation. There followed a slowly progressing ataxia of the upper, and later of the lower, limbs, with uncertain gait, disturbance of touch, pain, temperature, and muscular senses, with delayed sensation of pain, and loss of tendon reflexes. At first she felt shooting pains in the limbs, but later these ceased. There was at no time tenderness of the nerves to pressure. After three months bulbar symptoms appeared, atrophy with paresis of the tongue, difficulty in swallowing, spasms of coughing, weakness of voice, and paralysis of the palate. The muscles of the hands began to atrophy about the time that the bulbar symptoms commenced, and soon were useless. In the atrophic muscles the faradic reaction was absent, the galvanic much reduced and very slow. Nine months after the onset she died of pneumonia.

The autopsy showed the brain and spinal cord to be normal. In all the peripheral nerves of the extremities, as well as in the hypoglossal and recurrent laryngeal nerves, well-marked atrophic degeneration was found, with destruction of axis-cylinders and medullary sheaths, and with thickening and increase of nuclei in the connective tissue sheaths.[2]

Observation XV.—Male, aged seventeen, after an attack of diphtheria grew gradually weaker and weaker, developed paralysis of the uvula, and paralysis with some atrophy in the muscles of all the limbs, and a slight paralysis of the face and tongue. There was no real ataxia, the muscular sense being normal, but the

[1] Pitres et Vaillard: Rev. de Médecine, 1885, p. 986; 1886, p. 193 et p. 574, Des Névrites Perpihériques chez les typhoides, les tuberculeux et les tabétiques. Also, Arch. de Neurol., 1886, p. 337, De la névrite segmentaire.

[1] Virch. Archiv., 1885, Bd. 99, S. 393.

[2] Kast.: Deut. Arch. f. klin. Med., 1886, Bd. xl. S. 41.

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weakness of the muscles interfered with all accurate movement and caused trembling. The eyes were not affected. There was a slight decrease of tactile sense all over, but pain sense was slow and imperfect. The reflexes were lost, electric reaction was normal in all muscles except the palate, in which RD was found. The sphincters were unaffected. The paralysis involved the respiratory muscles three weeks after the onset of the disease, and caused his death.

The autopsy showed extensive parenchymatous neuritis in all the peripheral nerves. The various stages of degeneration were found side by side in many nerves, and all degrees of degeneration were discovered. The nerves of the extremities, as well as the phrenics, showed these changes. Some nerve-fibres had simply lost their myelin sheath, others were reduced to a series of granular corpuscles; others consisted only of the empty Schwann sheath, whose nuclei were numerous. In many nerves the lesion involved only a few segments, and was not continuous through the entire length. At places circumscribed thickening of the endoneurium produced nodular appearances in the course of the degenerated nerve. Here congestion and emigration of leucocytes were found. The perineurium was unaffected. In almost all the muscles of the extremities and trunk such degenerated nerve-fibres were found. The cutaneous nerves were similarly affected, but to a less degree. The nerve-trunks were but slightly affected, as were also the nerve-roots. The spinal ganglia and cord were normal.[1] The limitation of the degeneration to single segments has also been noticed by Gombault and by Pitres et Vaillard.[2]

Observation XVI.—A boy, aged eight, developed paralysis of the soft palate one week after an attack of diphtheria. This continued for one month, when there suddenly appeared a weakness of all the extremities, and some disturbance of sight. Examination of the eyes showed a complete paralysis of all the recti muscles, with double ptosis, the accommodation and pupil reactions being preserved. The right side of the face was paretic. There was a very marked ataxia in all the limbs. It was with difficulty that he could carry food to his mouth, and he walked with much staggering, and with legs wide apart. Power and nutrition of the muscles were normal, and there was no change in their electric contractility. The tendon reflexes were absent, but the skin reflexes were preserved; and there was no disturbance of sensation, or of bladder and rectal functions. The symptoms all increased for ten days, and then respiratory paralysis caused his death.

It was possible to examine the brain only. The small vessels and capillaries were engorged, and the perivascular spaces full of emigrated corpuscles, while here and there small capillary hemorrhages were found. The vessel walls were not affected, and there were no thrombi discovered. The nuclei of the cranial nerves showed no changes. Both oculo-motor nerves were the seat of very great changes. The myelin sheath of individual nerve-fibres absorbed the carmine stain. In many fibres no axis-cylinder was to be seen. In others the cylinders were swollen or atrophied, presenting variations in size. The number of nuclei of the endoneurium was greatly increased, and among them large granular corpuscles were discovered. The lesion, therefore, which had caused the ocular paralysis was a diffuse neuritis.[1]

A similar affection of the ocular muscles, associated with general weakness, has been reported by Utthoff,[2] which developed two weeks after an attack of diphtheria, in a boy, ten years of age, and at the end of three months had completely recovered. In this case all reaction of the pupils in accommodation was lost, but the light reflex remained. The eye symptoms were attended by some paresis, especially in the legs below the knees, but the muscles were not atrophied, nor was their electric contractility altered. There was a very marked tenderness along the course of all the nerve-trunks. After recovery was complete the knee-jerk returned.

I have seen a case which resembled this quite closely, and inasmuch as paralysis of all the ocular muscles appears to be a rather rare affection, the case may be worthy of mention here.

Observation XVII.—A boy, aged thirteen, after an attack of diphtheria developed paralysis of the soft palate. Ohe week after the parlysis of the palate he noticed a disturbance of vision, which proved on examination to be due to a total paralysis of all the muscles of the eyeballs. The pupil reflex to light was preserved; but as he could not converge the eyes there was no reaction in accommodation. This paralysis of the eyeballs came on within twenty-four hours, and at the same time he developed a very marked degree of ataxia. He swayed in standing with eyes closed, and his gait was exactly like that of a well-marked case of tabes. The motions of the hands were also disturbed, and all the tests demonstrated an extreme degree of incoördination. The knee-jerks were lost; the skin reflexes were present. In addition to the ataxia there was actual weakness of the muscles, which was more evident in the arms and hands than in the lower extremities. He had formication in the legs, but not in the hands, and there were no lightning pains. He had great difficulty in swallowing solids as well as liquids, which seemed to point to some involvement of the muscles of deglutition as well as of the soft palate. This condition remained stationary for about three weeks, and then all the symptoms began to pass off gradually. His recovery was not complete until six months after the onset.

The prognosis in cases of diphtheritic paralysis is usually very good, the fatal cases here cited being rarities. The treatment consists in general tonic medicines, and the application of electricity to the limbs in the same manner as in other cases of neuritis.

(*b*) Neuritis following variola is a rare complication, and the following case is the only one on record in which an autopsy proved the seat of the lesion:

Observation XVIII.—A young man had varioloid in November, 1881, and while convalescing, six weeks later, began to suffer from severe pains in his four extremities, especially in the joints of his arms, which were diagnosticated as rheumatic, although there was no fever. Soon after there followed a true paresis, with progressive atrophy of the muscles of forearms and legs. The muscles at the same time became very tender to

[1] P. Mayer: Virch. Arch., 1881, Bd. 85, S. 181–226.
[2] Arch. de Neurol., xi.

[1] Mendel: Neurol. Centralbl., 1885, p. 128.
[2] Neurol. Centralbl., 1885, p. 125.

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touch or pressure. The tendon reflexes were much diminished. Reaction of degeneration developed in all the paretic muscles. The pains in the joints and limbs continued, but were less severe than at the outset. The sensibility of the skin was about normal. The nerve-trunks were tender to pressure. Profuse, offensive perspiration in all four extremities was a distressing symptom. There was no tendency to bedsores, but an extensive pemphigus developed in the legs, and then the pains became more severe. The patient died in July, 1882, of pneumonia.

Autopsy showed the brain œdematous, and the cord in a state of hypostatic congestion. The pathological changes of importance were found in the nerves and muscles. The majority of the nerves of all the extremities were found in a state of degeneration and atrophy. There was marked degenerative atrophy and fatty degeneration of the muscles.[1]

(*c*) It is still somewhat a matter of conjecture whether cases of paralysis following typhoid, typhus, and malarial fevers are due to an affection of the peripheral nerves or of the spinal cord. The researches of Pitres and Vaillard[2] have shown that extensive degeneration of peripheral nerves is to be found in the bodies of patients who have died of typhoid fever, and they have also demonstrated that these fevers are often followed by local neuritis as a sequel. Cases of multiple neuritis with autopsies have not as yet been reported after typhoid or typhus: but Buzzard has recently recorded[3] two cases, following malarial fever, in which all the symptoms pointed to an affection of the peripheral nerves. In this country Gibney has described several cases of paralysis of the extremities, of sudden onset, rapid course, and prompt recovery under large doses of quinine, which he considered malarial. Probably the following case, which was kindly sent to me by Dr. L. E. Holt, was of this nature.

Observation XIX.—Peter S., aged ten, a healthy boy, was suddenly seized with a chill and fever, and with pains of a severe kind in both legs, associated with weakness so that he could hardly stand. The pain was referred to the sciatic nerves, and was accompanied by numbness and tingling of the feet and legs. There was marked tenderness both in the course of the sciatics and in the muscles of the thigh and leg. There was loss of tendon reflexes, preservation of skin reflexes, and marked paresis in all the muscles of the legs, so that he required help in walking. There was no ataxia, and no incontinence of urine. The symptoms lasted about twenty-four hours, aud then decreased in severity gradually during the following day, but recurred on the third, and, after a remission, on the fifth day, with lessened severity. The periodicity of the affection and the rapid cure under quinine left no doubt as to its malarial nature. During the third day, at the time when I saw him, there was redness along the course of the sciatics, and in the region of the right median nerve, and extreme tenderness along these nerve-trunks, in addition to the symptoms mentioned. The electric condition was, unfortunately, not tested; but in Westphal's case faradic contractility was totally abolished during the attack.[1] In this case the active manifestation of the malarial poisoning was by general neuritis. In Buzzard's cases the malarial attacks preceded the nervous affection. The tenderness in muscles and nerves left no doubt regarding the peripheral nature of the disease.

And here I may suggest that it is possible that many minor nervous affections of transient nature and of malarial origin, if more carefully examined, will be found to be due to some abnormal condition in the peripheral nerves. I allude not only to neuralgiæ, but also to visceral neuroses, whose clinical features have been so graphically described by Dr. Clifford Allbutt,[2] and to numb fingers and toes, and to hyperæsthetic and painful areas on the surface, and that host of symptoms of a local character so often carelessly ticketed neurasthenia and dismissed from consideration as soon as named. There is much in the study of the phenomena of neuritis to enforce this suggestion, which cannot be developed here.

(*d*) We come, lastly, to those cases of multiple neuritis which occur in tubercular patients, or in those who have had syphilis. If a review of the cases of multiple neuritis already cited be made, it will be found that quite a number of the patients died of phthisis. This was true of the cases of Joffroy, Eisenlohr, Strümpell, Webber, and Müller. Oppenheim[3] has reported cases of multiple neuritis in tubercular patients which went on to recovery. The following case died:

Observation XX.—A young girl, who had had syphilis and was suffering from phthisis, took a severe cold and began to have pains in the joints, weakness, and numbness of the lower extremities. The weakness of the legs increased rapidly, and was attended by rapid diffuse atrophy. The same symptoms soon developed in the arm. Four weeks after the onset partial RD was present in all the extremities, and a total paralysis of the legs, and nearly complete paralysis of the arms were present. In the course of the disease, which lasted five months, there was little pain. but great tenderness of the muscles and hyperæsthesia of the skin. The sensation was diminished in feet and hands, but this was slight in comparison with the motor symptoms. The paralysis finally attacked the trunk muscles and the diaphragm, while the beginning of rapid heart action was thought to indicate paralysis of the pneumogastric nerve. Great prostration, delirium, incontinence, bedsores, and œdema of extremities, with fever, preceded death.

Autopsy: High degree of degeneration of the peripheral nerves, including the phrenic and pneumogastric, was found, with a moderate degree of atrophy of the muscles. Cord normal, anterior motor roots normal. The changes in the nerves were similar to those after section, viz., a simple degeneration of the fibres with some increase in the connective tissue, but there were no evidences of changes in the vessel-walls, no infiltration with cells. The nerves contained very few normal fibres. The myelin sheaths were found in all stages of destruction, down to an entire absence of contents of the sheath of Schwann. Throughout the fibres fatty and granular masses were found. The sheath of

[1] P. Grocco, Milano, 1885; Centralbl. f. med. Wissen., 1885, p. 693,

[2] Rev. de Méd., 1885, p. 980, Des Névrites périphériques.

[3] Paralysis from Peripheral Neuritis, p. 104.

[1] Neurol. Centralb., 1885, p. 287.

[2] Gulstonian Lectures, 1884.

[3] Oppenheim: Zeitschr. f. klin. Med., 1886, p. 230.

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Schwann did not, however, show an increase of nuclei.[1]

Such a case as this would have been ascribed, a few years ago, to a tubercular spinal meningitis, as would many of the other cases already alluded to. It is not my purpose to dispute in any way the fact that many cases of paralysis occurring in the course of phthisis are due to lesions of the central nervous system and its membranes; but I desire to emphasize the fact that a multiple neuritis may produce paralysis in tubercular individuals, and the importance of appreciating this possibility cannot be too strongly urged, since the treatment, as well as the prognosis, will differ widely according to the diagnosis made. It has been known for some time that local neuritis may complicate phthisis, and the researches of Pitres and Vaillard have recently confirmed this fact. But the complication of multiple neuritis is one not mentioned in the text-books, and yet is one which is by no means rare. It seems not unlikely that some of the nervous symptoms in consumption, formerly considered functional, may be traced to this affection.

Although syphilis has been described as a cause of neuritis, I cannot find that the lesion in the few cases examined has had the peculiar characteristics of syphilitic lesions elsewhere in the body, and therefore it seems to me doubtful whether we are justified in describing a syphilitic multiple neuritis. Further facts are needed to establish its existence.

(*e*) It only remains to consider briefly the epidemic form of multiple neuritis, and our study of the infectious cases will be complete.

In 1882 Professor Scheube, of Tokio, Japan, called the attention of European physicians to the existence of a peculiar affection prevailing among the Japanese.[2] It was called kakke; from two Chinese words—kiaku, meaning legs; and ke, meaning disease. It had been known among the Chinese for centuries, being mentioned by name in Chinese medical books written 200 years before the birth of Christ, and fully discussed by an eminent author in 640 A.D. It ceased, however, to prevail in China about two hundred years ago, and its ravages are now confined, according to Scheube, to Japan. There its importance is considerable, since it is so prevalent that in 1877 14 per cent., and in 1878 38 per cent., of the men serving in the army suffered from it. It is considered a miasmatic infectious disease by Scheube, although an eminent Japanese authority considers it due in some way to the diet of rice. That diet has something to do with its occurrence is proven by the fact, communicated to me by Dr. Wallace Taylor, that since wheat has been substituted for rice in the diet of some of the barracks and prisons in Japan, the disease has been less common. It occurs in epidemics, but is always endemic in Japan. It does not attack Europeans. It affects females rarely, only 9 per cent. of the cases being in women; and it is the youth of the land, between the ages of sixteen and twenty-five, who are attacked. Exposure to damp and cold in crowded dwellings, such as barracks, increases the liability to the affection. The majority of the cases occur during the hot months, but some are always under observation. This disease is not, however, confined to Japan. It has been observed for many years in the islands of the Pacific Ocean, in India, Ceylon, on the west coast of the Red Sea, in Borneo and New Guinea, in Brazil and Cuba, and its prevalence in the Dutch possessions in the China Sea has made it familiar to physicians from Holland who have visited these colonies. It is there known under the name of beri-beri. It is endemic in these regions, but occasionally occurs as an epidemic. An interesting account of such an epidemic, occurring in 1882–83 in Manila, the chief city of one of the Philippine Islands, has been given by Dr. Koeniger.[1] It appears that in the fall of 1882 an epidemic of cholera occurred in Manila of such severity that 20,000 persons, in a population of 400,000, were affected. As a precaution against this disease, the native population lived for several months almost exclusively upon rice, refusing to eat fruit or fish, which are their other chief articles of diet. As the epidemic was subsiding a terrible cyclone devastated the city, destroying the light wooden houses, and leaving 60,000 families homeless; and these poor people were exposed for several weeks to the inclemency of the weather, which at this time of the year is rainy. A few days after the cyclone the epidemic of beri-beri began, and as the disease had never before appeared in Manila, the unknown affection excited great alarm. This was increased by its fearful mortality, 60 per cent. of the early cases proving fatal. Europeans were exempt, with two exceptions, and the Chinese population did not suffer greatly, but among the natives the epidemic was widespread. Thus, in one suburb of Manila, of 25,000 inhabitants, 300 died in the course of eight weeks. Men and women were equally affected, and persons of all ages, except young children, were attacked. The disease terminated fatally in from ten days to five weeks after its onset; but as time went on, the proportion of recoveries increased, and by the end of March, 1883, it had almost disappeared. The months from October to March are the dry, cool season in the Philippine Islands, although the climate is tropical. Exposure to heat could hardly be considered a cause of this epidemic, but whether the exposure to cold and damp, or the diet of rice, or the transportation of some infectious agent by the cyclone was the cause, gave rise to much discussion, and could not be determined.

Sporadic cases of beri-beri, or kakke, occasionally appear in our hospitals, usually in the persons of Chinese or Malay sailors, or in the persons of travellers from tropical climates who have been exposed to the infection in the place from which they came. Three such cases have recently been reported by Dr. Seguin, of this city,[2] in patients who came from the West Indies, and a case observed in Bellevue Hospital, by Dr. J. West Roosevelt, was discussed in the Academy of Medicine recently. In 1881 a Brazilian naval vessel entered San Francisco with a large number of the crew affected by the disease. They were sent to the United States Marine Hospital, and attended by Dr. Hebersmith, who gave an interesting account of the circumstances leading to the development of the disease, in the United States Marine Hospital Report.[3] From this report the accompanying map is taken, which demonstrates the localities in which beri-beri is endemic.

[1] Vierordt: Arch. f. Psych., 1883, xiv. 3.
[2] Deut. Arch. f. klin Med., xxxi. and xxvii.

[1] Deut. Arch. f. klin. Med., xxxiv.
[2] THE MEDICAL NEWS, Philadelphia, December 11, 1886.
[3] Marine Hospital Report, 1881.

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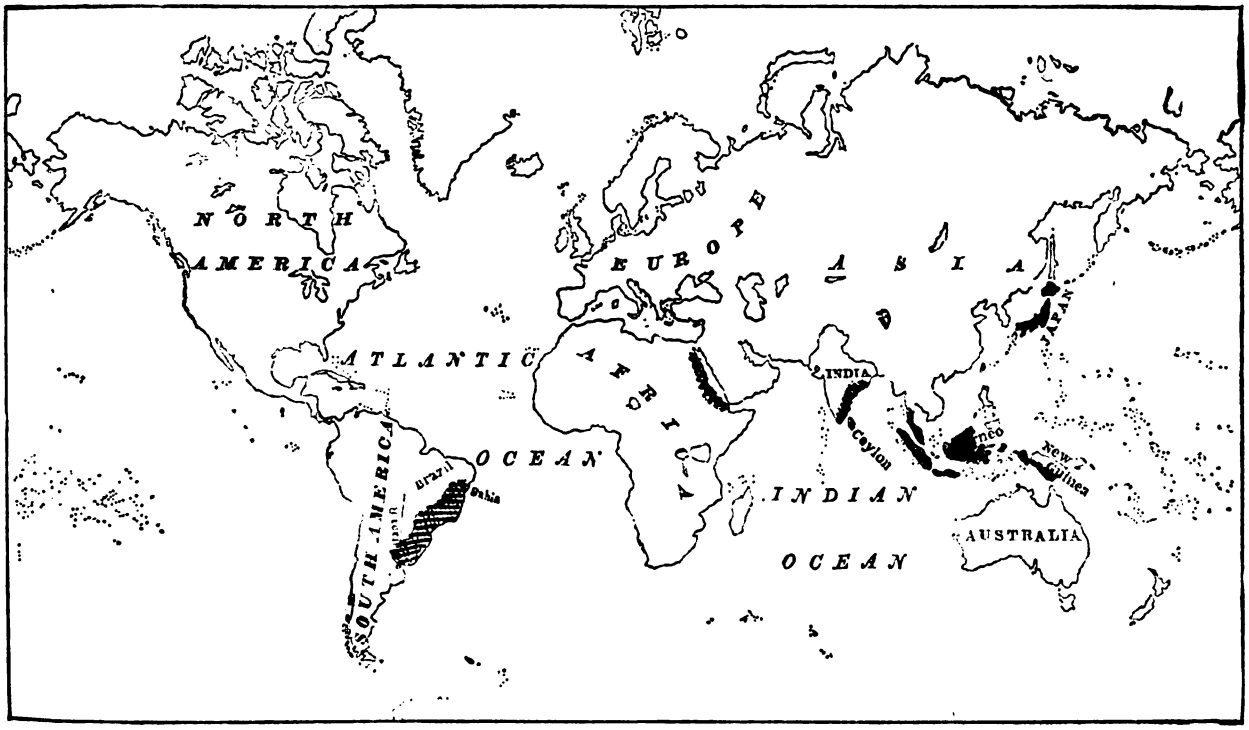
Only last year a commission was appointed by the Dutch Government to investigate the subject of its nature, and the recently published report contains the following statements:[1] The disease is caused by a micro-organism resembling the bacillus of splenic fever, though somewhat smaller, which colors with fuchsin and gentian-violet, and can be seen with a power of 560 degrees. These bacilli are found in the blood, lungs, heart, brain, cord, and nerves of the patients, and can be cultivated outside of the body. The germs infect wooden dwellings chiefly. They may be conveyed by articles of clothing, and probably enter the body by the lungs. Direct contagion has not been observed. A potent predisposing cause to their reception in the body and to the development of the disease is lack of nutrition, consequent upon exposure to damp and to cold, and upon insufficient or bad food. It must, however, be added that a most thorough examination in Dr. Roosevelt's case, by Dr. Prudden, failed to reveal the presence of such bacilli.

In the light of these recent investigations a new view is taken of an epidemic of a peculiar kind which occurred in France in 1828. Buzzard has found an account of this, prepared by Graves, in which the symptoms are so fully detailed as to leave no doubt that it was an epidemic of multiple neuritis.[2]

The cases of beri-beri are divided into two general classes, according to their severity.

There are, first, slight cases, in which the onset is gradual, being usually preceded by a little fever, coryza, and conjunctivitis, which cease when the actual symptoms commence. The patient first notices a weak and heavy feeling in the legs, and finds that he tires so easily that he cannot walk as much as usual. The tired feeling is soon associated with numbness and pain in the legs, and with a slight œdematous swelling. Then, if not before, palpitation of the heart, oppression and weight in the epigastrium, loss of appetite, and general malaise are felt, and the patient finds it necessary to apply for treatment. An examination then shows some diminution of power in the feet and legs, and also in the hands, with loss of tendon reflexes, and much tenderness in the muscles, which show a diminished electric excitability. There is never any ataxia, though the patient sways when his eyes are closed. There is discovered a slight degree of anæsthesia, of irregular distribution, chiefly in the legs and in the radial nerve region on the forearms. Though the patients look pale it is usually impossible to find anæmia by examination of the blood.[1] The circulation in the extremities is sluggish. The heart is irregular and rather rapid, and the œdema of the extremities indicates a failure of its power. Dr. Wallace Taylor[2] finds that a sphygmographic tracing is characterized by a sudden high upstroke in ventricular systole, by a precipitous descent from the apex of the percussion wave, and by dicrotism. Beyond this point these cases, which make up the majority, do not advance. They usually recover in a few days, or at

FIG. 6.



Sketch Map indicating the Geographical Distribution of Beri-beri. (From United States Marine Hospital Report, 1881.)

[1] Deutsche med. Woch., December 9, 1886 (an abstract only is given). See, also, Harada: Neurol. Centralbl., 1885, p. 326.

[2] Buzzard: On Paralysis from Peripheral Neuritis, p. 37.

[1] Studies in Japanese Kakke, by Wallace Taylor, M.D. Osaka, 1886.

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most a month; although a few become chronic and require several months before the cure is complete.

There are, secondly, severe cases. These may present three different types. There is the atrophic or dry type, in which, after an onset similar in nature to that in the slight cases, but much more rapid, the weakness develops into a true paralysis, associated with marked wasting of the muscles and reaction of degeneration, with great diminution of galvanic excitability. Within a week the patient has to go to bed, and then the paralysis soon spreads from the legs to the arms, and may involve the trunk and even the face. The entire muscular system wastes away till the patient is a mere skeleton. In addition to the motor symptoms there is great sensory disturbance. The suffering from pain, paræsthesiæ, and general muscular tenderness is extreme, and the patient lies totally helpless and unable to tolerate the lightest touch. The skin may be glossy. There is usually some anæsthesia, but it is never complete, although it may involve the entire body. The temperature sense is seldom affected. Pain may be delayed in transmission. There are no gastric symptoms and no œdema. Some cases prove fatal from general exhaustion, or intercurrent disease, but the majority recover after a convalescence which lasts a year or more, during which the muscular system is rebuilt.

There is, secondly, the hydropic or wet type. In these heart-failure appears early, and is associated with a marked decrease of arterial tension and much œdema of the entire body, the effusion into the cavities being added to that beneath the integument. The swelling of the œdematous parts conceals the atrophy which is going on in the muscles, but this is indicated by the paralysis, which is as severe as in the preceding form, and it becomes evident during recovery when the œdema has subsided.

There is, thirdly, the acute pernicious type. In this all the symptoms of the two former types appear in rapid succession, and, in addition, gastro-intestinal symptoms and a suppression of urine combine to make the condition an alarming one. Effusions into the pleura and pericardium appear early. The pulse becomes small and irregular, and cyanosis indicates the heart-failure which precedes death.

In this form the disease may run its course in two weeks to a fatal termination. This was the form which chiefly prevailed in Manila, the cases of the atrophic form being the ones which recovered.

The severity differs much in different epidemics, the mortality varying from two per cent. in Japan to sixty per cent. in Manila. It is usually not above three per cent. In all the forms there is some danger of a sudden heart-failure, and this is usually the cause of death.

The morbid anatomy of the disease is, primarily, a multiple peripheral neutritis, with, secondarily, numerous organic changes in various organs, none of which, however, are essential to the disease.[1]

While we cannot join in the wish expressed by an enthusiastic German author, that the disease may soon become a familiar one to those outside of Japan, we cannot pass it by without a brief reference, especially as it resembles in so many of its features, as well as in its pathological basis, the condition which has occupied our attention at present. And it may not be unprofitable to obtain a clinical picture which differs somewhat from that already viewed, in connection with the forms more familiar to us, in order to detect sporadic cases of the disease, if such should appear among us. As to its treatment, it may be mentioned that quinine failed to influence its course, and that heart stimulants to combat the dangerous complications, hypnotics to counteract the pain and insomnia, and general tonic treatment have proved of the greatest service. Change of climate often is attended by recovery. In the stage of recovery electricity and massage have been employed with advantage.

(To be concluded.)

[1] Scheube: Virch. Archiv, Bd. 95, S. 146.

ORIGINAL ARTICLES.

THE SURGICAL TREATMENT OF DISEASES OF THE GALL-BLADDER.[1]

BY JUSTUS OHAGE, M.D.,
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GALL-STONES in the human subject are not of rare occurrence. They are less frequent in men than in women. Stein[2] collected 620 cases, of which 377 (61 per cent.) were in women, and 243 (39 per cent.) in men. They occur mostly after the age of thirty, and cases are rare below that age.

The etiology of gall-stones is as yet rather obscure. Although errors in diet—too much meat-diet, for instance—peculiarities in the nature of the soil in certain localities, sedentary habits, lacing, etc., may have some influence upon the formation of gall-stones, their origin is, perhaps, referred with more justice to a too small number of daily meals, in consequence of which the gall-bladder is less frequently emptied than it ought to be.[3]

Gall-stones may exist in the body without giving rise to any symptoms whatever. We often find them on the dissecting-table in subjects in whom, during life, they caused no inconvenience whatever. They first become of importance, if, from some cause or other, they start from their place of origin, giving rise to excruciating pains, and occasioning conditions which, in their consequences, are exceedingly dangerous to health and life. Death due to gall-stones is not very uncommon. The treatment of cholelithiasis, or gall-stone disease, by internal medication has been unsuccessful and hopeless, and yet, until a few years ago, no attempt was made to resort to the knife to cure a disease with which internal medicine was unable to cope.

Fear of fatal peritonitis, difficulty of diagnosis, and the severity of the operation, were the reasons which deterred surgeons, and left the field to internal medicine to ease the unfortunate patients by opiates, etc.

With Sir Joseph Lister's introduction of antiseptic surgery a new era appeared. Step by step opera-

[1] Read before the Ramsey County Medical Society, St. Paul, Minnesota.

[2] Eichhorst: Pathologie und Therapie, i. p. 973.

[3] Frerichs: Diseases of the Liver, iii. p. 201.

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tions, each surpassing the other in boldness and success, were performed; the abdomen with all its contents was successfully made subject to the surgeon's knife; and operations, but a few years ago considered absurd, have been legalized, and proved the means of saving many lives. Thus, by gradually extending the limits of abdominal surgery, the diseases of the gall-bladder and liver were finally made amenable to surgical treatment.

I do not wish it understood that surgical interference is necessary in all cases of gall-stones; it is only required where their dislodgement and subsequent obstruction to the biliary canals cause dangerous conditions which internal medicine is unable to avert, and which, as a rule, without surgical aid, will sooner or later cause the death of the patient.

But further, as any person suffering from gall-stones is at no time secure that on their way from the gall-bladder to the bowel they may not become arrested in their passage, thus causing obstruction and its consequences, which are so eminently dangerous, would it not be proper and conservative surgery to operate early, thus sparing the patient days of untold agony, and saving many a valuable life?

What surgeon would nowadays allow a woman with an ovarian tumor to die without giving her the chance of an operation? Where are the contra-indications to ovariotomy if performed by a competent surgeon? If we look back ten or twenty years, and see a mortality of over thirty per cent. after ovariotomy reduced nowadays to almost none; if we consider how many thousand women have been saved from death by this one operation, and if we consider that cases of cholelithiasis are nearly as frequent as ovarian tumors, the questions arise: Why are so few operations upon the gall-bladder performed? What is their death-rate, and what is the result?

The reason so few operations are performed is because of the difficulty of diagnosis, the tendency to treat gall-stone disease by internal medication, and in an insufficient understanding by the profession at large of the possibility of successful surgical treatment. How many cases of chronic colic, gastralgia, neuralgia of the liver, and jaundice, are cases of gall-stones?

The death-rate after operations upon the gall-bladder is not so high as that after ovariotomy at its infancy, and with a better understanding, and with experienced operators, it will probably become as low. The results compare favorably with those of ovariotomy—a complete restoration to health is obtained.

The history of the surgery of the gall-bladder presents a great similarity to that of ovariotomy.

Hippocrates, Galenus, and Aretæus gave descriptions of gall-stones and diseases dependent upon them. The eminent French surgeon, Petit,[1] in the last century proposed an operation similar to lithotomy for the removal of gall-stones. If the gall-bladder was dilated and adherent to the abdominal walls, it was punctured, or fistulæ were dilated by tents and through these openings the stones were extracted with the aid of long forceps. In this way Vogel, a surgeon of Lübeck, in the last century, thought he had performed one of the "very finest surgical operations."

Another hundred years passed by until Dr. Marion Sims[1] planned and performed cholecystotomy in a case of dropsy of the gall-bladder due to gall-stones. This was in April, 1878. His patient died in nine days from exhaustion and protracted hemorrhages; still he showed the feasibility of the operation, at the same time teaching the valuable lesson not to wait until the patient's strength becomes exhausted or his blood bile-poisoned. Kocher,[2] in June, 1878, was the first who performed this operation successfully; his patient recovered in five weeks.

Musser and Keen[3] were able to tabulate up to October, 1884, thirty-five cases with ten deaths. Of this number six, which were cases of cholecystectomy, or extirpation of the gall-bladder, ought to be excluded. Five were reported by Tait in the *British Medical Journal* of May 3, 1884. No names of operators are given or other details, but three deaths and two recoveries are tabulated. The other one was Langenbuch's, No. 13 of Musser and Keen's table. This leaves twenty-nine cases, with seven deaths, reported from all sources up to October, 1884. Since then there are recorded successful cases: Tait seven,[4] Courvoisier one,[5] Trendelenburg one,[6] König one,[7] Böckel one,[8] Parkes one,[9] Carmalt one,[10] Hutchinson one,[11] Ohage one,[12] Robson two.[13] Fatal cases: Parkes two,[14] Lange one,[15] and Wetzel one.[16] Making in all fifty cases with thirty-nine recoveries and eleven deaths—a mortality of twenty-two per cent. These were all cases of cholecystotomy or *in*cision of the gall-bladder in contradistinction to the cases of cholecystectomy or complete extirpation of the gall-bladder, which I shall give further on.

I would like to draw attention to the difference in these two words. Their framing, composition, and designation are as clear and precise as can be. Few technical terms correctly explain as fully and anatomically their meaning as cholecys*tot*omy and cholecys*tec*tomy do, and yet in looking over the literature of the subject there is as much confusion in regard to their understanding as there is regarding Tait's and Battey's operation.

Cholecystotomy: χόλη, bile; κύστις, bladder; τέμνω, cut—*i. e.*, cutting the gall-bladder.

Cholecystectomy: χόλη—κύστις—ἐκτέμνω, to cut *out*—*i. e.*, cutting *out* the gall-bladder—extirpation.

[1] Albrecht: Lehrbuch der Chirurgie, 1882, iii. p. 390.

[1] British Medical Journal, 1878, i. p. 811.
[2] Cor. Bl. f. Schweizer Aerzte, 1879, viii. p. 577.
[3] American Journal of the Medical Sciences, October, 1884, p. 344.
[4] Lancet, February 13, 1886.
[5] Cor. Bl. f. Schweizer Aerzte, No. 15.
[6] Reported by Witzel.
[7] Verhandl. d. deutsch. Gesellsch. f. Chirurgie, 1882.
[8] Gazette médicale de Strassbourg, No 8, 1884.
[9] American Journal of the Medical Sciences, July, 1885.
[10] THE MEDICAL NEWS, May 8, 1886.
[11] THE MEDICAL NEWS, May 22, 1886.
[12] Northwestern Lancet, October, 1886.
[13] British Medical Journal, October 31, 1885.
[14] THE MEDICAL NEWS, May 8, 1886.
[15] THE MEDICAL NEWS, January, 1886.
[16] Deutsche Zeitschr. f. Chirurgie, xxi. S. 139.

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CASE I. *Cholecystotomy; impaction of stone in the common duct; empyema of gall-bladder; removal of forty-four stones; recovery.*—Mrs. Johanna S., Swede, æt. forty-two, married, mother of several healthy children, called at my office, February 23, 1886, and gave the following history: Had been more or less of an invalid for the last twenty years, suffering, at times, excruciating pains, referred to the right hypochondrium, extending to the right shoulder, and clear across her body. Paroxysms of pain of variable duration, often lasting for weeks, sudden in onset and disappearance. Had often been jaundiced. Two weeks prior to my seeing her she had another attack, accompanied and followed by chills, and the pain increasing and being of a more severe character than ever before, she was removed to St. Paul, a distance of forty miles, and brought to my office for treatment.

On personal inspection I found a slender, emaciated woman, whose face wore an expression of severe suffering; skin slightly icteric; pulse feeble at 120; temperature, 38° C. (101° F.). In the right hypochondriac region a tumor, about the size of a fist, could be felt, which was slightly movable, and which followed the respiratory movements of the liver. By palpation and percussion it appeared adherent to this organ. Pressure upon it, no matter how light, caused pain and nausea. The shape of the tumor was oviform. Fluctuation could not be detected. Urine showed the presence of bile. She had also suffered from dyspeptic symptoms, and the feces were clay-colored. Other organs healthy.

Diagnosis.—In consideration of her history, which was very intelligently given, and the results of the present examination: Cholelithiasis, impaction of a stone in the ductus communis (icterus and enlargement of the liver), beginning abscess formation (chills, elevated temperature), and enlargement of the gall-bladder.

I proposed an operation to her, to which she gave her consent. She entered the St. Joseph's Hospital, of this city, the same day, and the next morning, February 24th,[1] I operated, assisted by Drs. Nelson, Schulin, and the house-surgeon, Dr. Thompson, in the presence of Drs. Murphy and Hoyt, under strict antiseptic precautions, except spray. Temperature of operating room 90° F. Ether narcosis. Vertical incision about six inches long at outer border of right rectus muscle, beginning above at the margin of the eighth rib. After all hemorrhage, which was profuse, was controlled, I opened the peritoneal cavity in the usual manner, and encountered a mass which was firmly adherent to the liver, colon, and all neighboring organs. It was impossible to differentiate one part from another, to such a degree had inflammatory changes during a disease of twenty years' standing effaced all anatomical relations.

After considerable careful and difficult work I was able to expose the lower anterior part of what seemed to be an enlarged and thickened gall-bladder. Further examination proved this to be the fact, and not daring to make an incision at once into the bladder, fearing, in the first place, excessive hemorrhage into an open peritoneal cavity; and, secondly, not being certain that stitches would hold in the soft mass while trying to sew it to the abdominal wound, I concluded to fasten the gall-bladder in the abdominal wall unopened, and wait before opening it until adhesions between it and the abdominal wound had formed. I introduced my hand again, and tried to get above the whole mass, hoping I might still be able to separate the gall-bladder, and then to extirpate it, but it was impossible, and the hemorrhage was so profuse from the torn adhesions that I had to abandon the object. I then sewed the edges of the peritoneum to the abdominal wall, slightly everting them, and then closed the upper part of the wound by deep and superficial silk sutures.

The lower part of the wound, about two inches, where the exposed gall-bladder presented, was left open, and here I tried to fasten it to the abdominal wound by a few stitches. But every stitch tore through, no matter how carefully knotted. Nothing was left to do but to pack the wound until adhesions had formed. After cleaning the wound with a 1 : 2000 corrosive sublimate solution, and dusting it freely with iodoform, I laid some iodoform cotton, twisted into an oval shape, around the abdominal wound, thus pressing the wound down upon the edges of the gall-bladder, holding it in position by a large pad of absorbent cotton, and an abdominal binder, well tightened. The operation had lasted about three-quarters of an hour; there was no shock.

Patient was put to bed, and hot bottles put to her feet. She reacted well from the ether, complained of no pain, and felt quite comfortable. Diet for the first three days: Cracked ice, iced milk, coffee, and beef-tea. Temperature gradually rose until it reached 103° F. on the fourth day at 6 P. M. (aseptic fever). No sign of peritonitis, or even peritoneal tenderness. Bowels were moved by clysma on the fourth day, and were clay colored, showing that the obstruction still existed. Temperature gradually declined until it reached nearly normal on the seventh day.

On the morning of March 3d, the eighth day after the operation, I removed the dressing for the first time, and found the upper part of the abdominal wound healed by first intention, and firm adhesions between the gall-bladder and lower part of wound.

Assisted by Dr. Nelson, the house-surgeon Dr. Thompson, and the Sister in charge, I made a simple incision through the walls of the gall-bladder—which were more than half an inch thick—large enough to admit a finger, and evacuated about half a pint of greenish-looking pus. On introducing my finger, I could feel the stones on the bottom of the sac, and with the aid of a pair of forceps I removed forty-one of them. Having emptied the gall-bladder of all its contents, I next examined the ducts with a tin sound and encountered another large stone in the common duct. While attempting to extract this, it broke, and I had to remove it piecemeal. After this the ducts were free and patulous, and I could pass the sound into the duodenum. The sac was washed out with a 1 : 3000 corrosive sublimate solution, a

[1] Reports, St. Joseph's Hospital, St. Paul, Minnesota, 1886.

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drainage tube put in, and a dressing of absorbent cotton applied. This second operation was done without any narcosis; the pain was insignificant.

On the third day there was a rise of temperature to 101° F. The dressing was changed, the cavity washed out as before, and two more stones removed. After this the temperature and pulse were normal, appetite good, bowels regular, and feces of natural color. Patient sat up on the twelfth, and went out on the fourteenth day after the first operation. The dressing was changed every day, and the sac washed out with a weak (1 : 6000) corrosive sublimate solution. There was a little discharge of bile and mucus. Drainage tube removed on the fifteenth day; wound closed rapidly.

Three weeks after the first operation the wound had completely healed, with the exception of a pin-hole fistula, which discharged a small quantity of bile-colored mucus daily. After staying a few weeks in the hospital, the patient went home and assumed the duties of a housewife, being in every way able to do her work, which for many years her disease had obliged her to forego. She has called on me several times since, and enjoys perfect health, but the fistula—which now and then closes—at times becomes painful, reopens, discharges a small quantity of mucus, and then closes again.

CASE II. *Cholelithiasis; cholecystectomy; impaction of stone in cystic duct; hydrops of gall-bladder; complete removal of gall-bladder with 135 stones; recovery.*—Mrs. Lena A., Swede, æt. thirty-five years, married, multipara, called at my office on September 23, 1886, complaining of constant pain in the right hypochondriac region, extending to the right shoulder and stomach. This pain, which commenced about three months ago, had been preceded for the last three years by often repeated attacks of "colic" of variable intensity and duration. The pain always started from the right side. She had several times been jaundiced, and suffered considerably from deranged digestion.

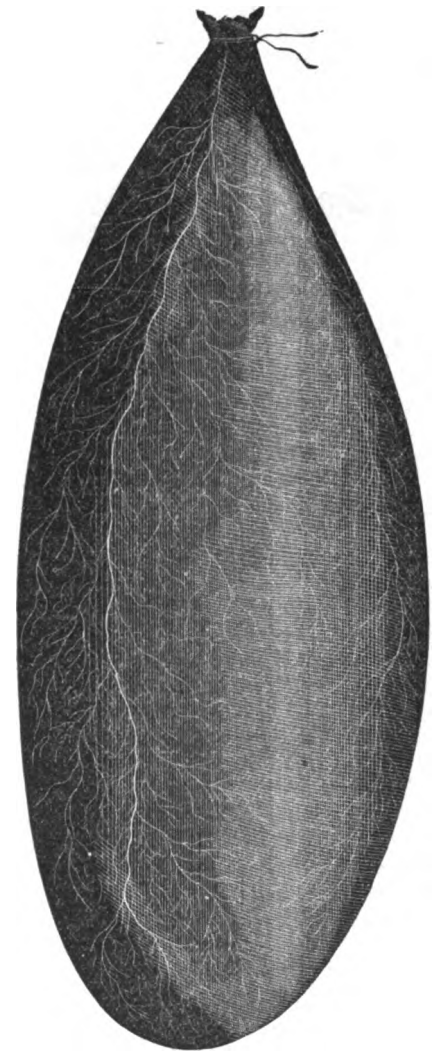
On examination I found a strongly built, well-proportioned woman, with a clear, not icteric skin. In the right hypochondriac region an oblong tumor could be felt which was freely movable and painful to the touch. Palpation and percussion proved its upper portion to be in contact with the liver, while its lower end almost reached the iliac fossa and could be moved across the median line. The tumor followed the respiratory movements of the liver. There were dilatation and chronic catarrh of the stomach. Feces of natural color. Urine normal. All other organs healthy.

Diagnosis.—Cholelithiasis. Enlargement of gall-bladder due to obstruction of cystic duct by a stone. The possibility of the tumor being a movable kidney or an echinococcus was considered.

Operative treatment was proposed and readily accepted, and the patient was conveyed to St. Joseph's Hospital the same day. The following morning, Sept. 24, 1886, I operated, assisted by Drs. Nelson, Schulin, Dedolp, Jr., Denny, and the house-surgeon Dr. Welsh, under strict antiseptic precautions, no spray. Room temperature about 90° F. Ether narcosis. Vertical incision about six inches long on outer border of right rectus muscle, beginning above at margin of eighth rib. Very little hemorrhage. Peritoneum opened in usual manner after all bleeding was controlled.

As soon as the abdominal cavity was opened the tumor presented itself, which proved to be an enormously distended gall-bladder with exceedingly thin

FIG. 1.



Gall-bladder, removed from Case II.

walls. After pushing the bowels aside and getting my hand under the liver, I detected a large stone firmly impacted in the cystic duct, completely obstructing it. All the gentlemen assisting me followed my example and each felt the stone plainly. The walls of the gall-bladder were so exceedingly thin that the greatest delicacy was necessary in handling it. Yet, unopened as it was, it promised such a good hold in handling it while detaching it from the liver, that I did not now aspirate it, as Langenbuch does, but first separated it completely from all sides. After this was done, by careful manipulation I succeeded in working the obstructing

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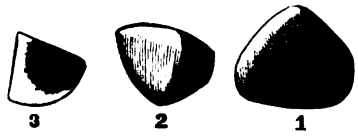
stone from the cystic duct back into the gall-bladder. All ducts were now closely examined. They were free and unobstructed. I now ligated the cystic duct with carbolized silk, and punctured the base of the gall-bladder with the point of a knife, evacuating more than a pint of a transparent muco-serous liquid and a few small stones, the gall-bladder being meanwhile held outside of the abdomen. After it was emptied of its liquid contents, I divided it close to the ligature with the Paquelin cautery and removed it with all the stones it contained, 135 in number. The ligature was cut short and the stump,

FIG. 2.



Some of the stones of Case II.

after being dusted with iodoform, dropped. A few layers of Lister gauze, which had been stuffed into the abdominal wound to catch up any liquid that might escape, were removed; and after washing that part of the bowels and liver which had been exposed, with a 1 : 2000 corrosive sublimate solution, the whole wound was closed with deep and superficial silk sutures, iodoform freely dusted over it, and a large pad of absorbent cotton applied and held *in situ* by a binder tightly secured. No drainage tube was put in.

The patient reacted well. There was scarcely any shock, and aside from the usual ether vomiting, which was controlled by hypodermatic injections of morphia and cracked ice by the mouth, she was in every way comfortable. On the third day the temperature rose to 101° F., the highest point ever reached during her recovery. Her pulse never rose over 90. On the fifth day she was troubled by constipation, and her bowels were moved with a few doses of calomel. After this she had natural movements every day. There is nothing of special interest in her convalescence. On the eighth day I removed the dressing for the first time, and finding the whole wound healed by first intention removed all sutures and simply supported the abdomen with a binder. She sat up on the eleventh, and went out on the thirteenth day after the operation. Her appetite is good, bowels regular, and feces of natural color, she is free from all pain and has in every way fully recovered.

The points of greatest interest in these two rather analogous cases lay in the difference of the operative procedures, and in comparing their ultimate and immediate results with one another.

(*To be concluded.*)

ALBUMOSE- AND PEPTONE-FEVER.

PRELIMINARY NOTE.

BY ISAAC OTT, M.D., AND CHARLES COLLMAR, M.D.,
OF EASTON, PA.

THE discovery by us that trypsin, when injected into the circulation causes fever (3½° F.), led us to investigate more minutely the action of this ferment.

Fairchild's trypsin was treated by saturating it with sulphate of magnesia, to remove any globulin that might be present, and the filtrate was heated after the method of Hofmeister to remove all the albumin, except the peptone. By this method we obtained a solution of peptone plus a saturated solution of sulphate of magnesia and a little acetate of sodium. To remove a greater part of the salts we submitted the solution to dialysis, and the solution coming through was evaporated to a small bulk. Alcohol was added, which precipitated the magnesium salt and the peptone, but the salt being heavier rapidly fell to the bottom of the test tube. The alcohol containing the insoluble peptones was rapidly decanted, evaporated to dryness, and the peptone dissolved in water.

The solution was then injected into the jugular, and a rise of temperature occurred. These experiments, as well as others by dialysis, demonstrated that trypsin caused fever, not through itself, but by a peptone. This led us to try other agents, and we found that Merck's meat peptone and papayotin also caused fever. In fact, the highest fever we have so far obtained has been by papayotin. These experiments led us to try the albumoses and peptones.

Through the kindness of Prof. Chittenden, of Yale College, we obtained albumoses and peptones. His name is a sufficient guarantee of their purity, as his researches upon these subjects are well known. When either proto-albumose or deutero-albumose, anti-peptone or ampho-peptone, were injected into the circulation, fever ensued, notwithstanding the dose was not over one-sixth of a grain. The effect of these bodies upon heat-dissipation and heat-production, how they act upon the inhibitory heat-centre discovered by one of us, will be detailed in the full report.

The large amount of albumoses and peptones poured into the system daily causes this subject to be one of great interest, for any deviation of the usual phenomena of absorption and assimilation might be fatal to the patient.

These experiments were performed on etherized rabbits, the number being twenty.

A NEW OPERATION FOR PROLAPSUS ANI.[1]

BY FREDERICK LANGE, M.D.,
OF NEW YORK.

THE patient whom I intended to present to you, but who has not appeared (probably being prevented by his professional duties as a detective), is not yet forty years of age, though he looks much older. For almost twenty years he had been suffering from prolapsus recti, with more or less incontinence. It seems that an inflammatory disease of the rectum (probably dysentery), accompanied with intense tenesmus, was the original cause. He has been operated upon a number of times after the usual methods (cauterization and excision of the mucous membrane), but apparently with only transient and partial relief.

[1] Read before the New York Surgical Society, Jan. 26, 1887.

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After one operation, done by my colleague, Dr. Adler, he was improved for several years; altogether he had undergone five different operations, when, in October last, he was readmitted to the German Hospital. He suffered from incontinence as before. The anal ring was quite relaxed and wide open, and even with slight pressure the rectum was extruded. The patient assured me that the prolapse was at times worse than ever before, and, from Dr. Adler's statement, I conclude that formerly the rectum would protrude to the length of fully six inches.

Not taking into consideration cases of partial prolapse of the rectal walls, we must admit that our methods of treating prolapsus recti do not yield very encouraging results. I once, in preantiseptic days, assisted at the operation of amputating such an extensive prolapse, after a preliminary operation, the purpose of which was to cause an inflammatory adhesion of the peritoneal layers. The patient died several weeks later from septicæmia. The amputation was done, if I am not mistaken, by the galvanocaustic snare. In our present aseptic age, I believe that such an operation, or a similar one, would be much less dangerous, but the question is, Would the result be lasting? So long as the lower part of the gut is allowed to pass through a widened and relaxed muscular sheath, which is formed by the levator ani and the sphincters, and the lowest portion of the rectum itself remains wide, there is always, I think, a strong probability of recurrence. I therefore, in my method of operating, tried to meet both indications, to narrow the rectum as high up as possible, and to fix around it a contracted muscular ring.

Anatomical and clinical observations lead me to infer that the levator ani takes an important part in the closure of the rectum. If one places the tip of his finger upon the anus, and then tries to make that muscular effort by which the passage of feces is prevented, it will be found that the anal orifice is not only lifted, but also drawn slightly forward against the perineum. This, I presume, is due to the action of those fibres of the levator ani, which, in passing behind the rectum and uniting with those of the opposite side, form a strong muscular arch, which in contracting must necessarily exert a pressure against the posterior wall of the gut, and in this way cause closure of the same.

I operated in the following manner: The patient was fixed on the table in the knee-elbow position, a thick cushion placed between his knees and under the lower part of his thorax and the upper part of his abdomen, giving a sufficient support; his legs were tied to the table, and his head rested sideways on a pillow. I have lately performed almost all of my rectal operations with the patient in this position, and I cannot recommend it enough. The hemorrhage is decidedly diminished, the parts are more accessible, and the principal vessels can nearly all be secured before they are divided. An incision was carried from the lower part of the sacrum down to the anus, until the posterior wall of the rectum was reached. I then removed the coccyx, for two reasons—first, I wished to narrow the gut as high up as possible, and, secondly, I thought that the proposed action of the levator ani might thus become less impeded.

The lumen of the rectum was narrowed in such a way that buried étage-sutures of iodoform catgut were introduced, which did not perforate the entire thickness of the gut, the first row being inserted near the middle line and forming a fold in the posterior wall which protruded into the rectum. In this way the more lateral portions of the gut, so far as it could be done without causing too much tension, were brought into apposition. Then the surfaces of the levator ani and sphincter externus, which had been dissected back in order to lay bare the posterior wall of the rectum, and next their cut surfaces were united by similar sutures. In order to secure a more lasting union, several buried sutures of silkworm-gut were also inserted into this muscular crest. Finally, a few sutures in the integument were introduced and the cavity corresponding to the removed coccyx was left open and loosely packed with iodoform-gauze.

The healing process proceeded without any special disturbance; everywhere the sutured parts united by first intention, and only from that portion of the wound which had been left open did a slight secretion take place. The patient's control over his bowels began to be manifest after the first few weeks, and never after the operation did the prolapse recur. Gradually the muscular closure became more and more complete, and now, if you insert your finger into the rectum, you will be able to make out a very strong voluntary action of the muscles.

I observe in this case the greater depth of the rima ani, and the fact that it is drawn inward by the action of the levator. I have tried, in a case of extirpation of the rectum for melanotic tumor, to secure muscular closure by uniting the levator ani. The result is not absolutely perfect, but the patient, a woman of about forty years, has more control over her bowels than these patients usually have. Only about three and one-half inches of the gut, including the sphincter, were removed in this case. Of course, in more extensive operations, where the gut cannot be sufficiently pulled downward, this plan cannot be executed.

AN IMPROVEMENT IN THE METHOD OF PREPARING BLOOD SERUM FOR USE IN BACTERIOLOGY.

BY A. C. ABBOTT, M.D.,
STUDENT IN PATHOLOGY, JOHNS HOPKINS UNIVERSITY, BALTIMORE.

To those who employ blood serum as a culture medium in bacteriological research, a short note upon an improvement in the method of collecting and preserving it may be of service.

The evaporation of water from serum when coagulated in test-tubes, ready for use, is so rapid as to render its preservation in this form, in large quantities, impracticable. Hitherto it has been customary to collect fresh serum for each supply of tubes that we required; and as only a small number of tubes could, in this way, be kept in a condition for use,

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for reasons stated above, this procedure necessitated no inconsiderable loss of time. It is to obviate this loss of time that I have endeavored to devise a method by which serum might be kept in the laboratory in a fluid state, sterilized and ready for use when required.

The method pursued, in short, is as follows: One or two thoroughly cleansed museum or fruit jars, having covers that hermetically seal them, are filled with blood as it flows from the large vessels of the animal's neck. They are then immediately covered and set aside for fifteen or twenty minutes until clotting has commenced, when a clean glass rod is passed around the circumference of the upper surface of the mass, in order to break up any adhesions that may have formed between the blood and the walls of the jar, thus preventing the watery portions of the blood from occupying the upper part of the vessel when the clot is complete.

They are then placed in a refrigerator (the laboratory refrigerator is safer than leaving them in the ice chest at the slaughter house) at a temperature sufficiently low to prevent the development of the organisms that must have gained access during exposure, and yet not so low as to interfere with perfect coagulation. At the end of twenty-four to thirty-six hours a very considerable amount of serum will have separated. This is then pipetted off into thoroughly cleansed glass or wool-stoppered cylinders. The serum at this stage may be of a clear straw color or may be reddish from the admixture of red blood-corpuscles, the amount of color depending upon the care with which it has been transported from place to place. These cylinders are then *packed in ice* for at least three days, when all of the suspended coloring particles will have precipitated to the bottom, leaving a clear transparent supernatant fluid.

The clear portion is then carefully drawn off by means of a sterilized pipette into wool-stoppered 100 c. c. flasks that have been sterilized by dry heat at a temperature of 150° C. for at least an hour. Each flask should contain from 60 c. c. to 75 c. c. of the serum.

Sterilization by the fractional method is then begun and is continued through six successive days for an hour each day. In sterilizing after this method the temperature within the chamber should at no time during the hour be higher than 64° C., and, if possible, should not fall below 58° C.; a rise in temperature much above 64° C. causing cloudiness, and a fall to any extent below 58° C. not being sufficient to kill the organisms. At the end of six days the flasks containing the serum are sterile and may be kept indefinitely. By following this plan we not only have at hand a stock of liquid serum, but a serum that has stood sufficiently long to have become, by the precipitation of its solid particles, almost colorless and clear.

Larger flasks than are above advised might be employed, but as we rarely prepare more than fifteen or twenty test-tubes at a time, a flask containing more than 100 c. c. of serum would of necessity require sterilization after each opening, and it is to obviate this that the whole amount is distributed through smaller flasks that may, with but little loss of serum, be discarded after once having been exposed.

In the different steps of this process much care is necessary in order to limit the amount of bacterial contamination to the minimum, and the stage at which there is liable to be the greatest contamination is in collecting the blood as it flows from the large vessels in the animal's neck. The skin and hair about the wound contain countless organisms and were the blood allowed to flow over these surfaces before collecting it, its complete sterilization would be a matter of some doubt. To exclude this, the animal, before being killed, should be thorougly secured and then suspended by the hind quarters to the ceiling above, so that when the throat is cut the head may be freely drawn back and allow a vertical uninterrupted flow of blood from the vessels into the receptacle.

The importance of blood serum as a culture medium is seen in the fact that it presents the only artificially prepared substance upon which some of the most interesting and important of the pathogenic organisms will grow; but as its preparation has always involved quite a loss of time, it is, in a measure, discarded for some of the more conveniently prepared media.

We have pursued the above plan during the past twelve months, and it has proven satisfactory in every respect. There are now in the laboratory a number of flasks of liquid serum that were prepared in this way ten months ago, and, except that they are clearer, they differ in no respect from serum freshly prepared.

MEDICAL PROGRESS.

DIFFERENT METHODS OF TREATING CERVICAL CATARRH.—DR. L'VOFF, of Kazan, has reported in the *Meditsinskoe Obozrenie* a number of observations made on the comparative value of different methods of treating catarrh of the cervix uteri. The total number of cases was eighty-two. Of these thirty-six were treated by mechanical scraping of the mucous membrane, eighteen by means of powerful caustic applications, and twenty-eight with weak caustics. The method of applying the weak caustic was, after washing out the vagina with warm water or a solution of boracic acid, to swab the cervical canal with tincture of iodine or with a 10 per cent. solution of chromic acid. This was done once a week, plugs soaked in glycerine of tannin being also used every other day. The strong caustic application consisted of a bougie made of sulphate of zinc and alum fused together. This was allowed to remain in the canal till it had all dissolved, which took place usually in one or two hours. Afterward the mucous membrane presented a white appearance, due to the eschar. This fell off in five or six days, during which time warm vaginal douches were administered and plugs of glycerine and iodoform inserted every alternate day. In the cases treated by scarification an iodoform glycerine plug was left in for twenty-four hours, and the patient was then sent home. The results of these different methods of treatment were that the mild caustics

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ultimately effected a cure, but required at least two months to do so; while the severer methods—that is to say, the fused zinc and alum and the scarification—produced a permanent cure in about a fortnight. The author adds that no unpleasant symptoms were caused by either the caustics or the scarification in any of the eighty-two cases.—*Lancet*, Jan. 22, 1887.

A SUCCESSFUL TREATMENT OF SCIATICA.—DR. JOHN T. METCALFE gives the following prescription, which he has used with marked success in sciatica:

℞.—Tinct. aconit. radicis,
Tinct. colchici sem.,
Tinct. belladonnæ . equal parts.—M.
Sig.—Six drops every six hours until relieved.

Dr. Metcalfe uses tablet-triturates, each of which contains three drops of the following mixture as the most convenient form in which to prescribe its ingredients:

Tinct. aconit. rad.,
Tinct. colchici sem.,
Tinct. belladonnæ,
Tinct. acteæ racemosæ, equal parts by volume.

One of these tablets is given every four, six, or eight hours, as may be needed.

Marked beneficial effects have followed its use in three days; and in neuralgia of the axillary and brachial nerves it has proved of great value.—*Boston Medical and Surgical Journal*, January 27, 1887.

DETERMINATION OF SEX.—KISCH, of Prague, has reviewed former theories on this subject, and found in 1972 births, 1023 males and 949 females; his results do not agree entirely with those of Hofacker and Sadler.

Kisch found when the man was older than the woman from 1 to 5 years, 294 male to 283 female children; when the disparity in ages was from 6 to 10 years, 327 males to 306 females; 11 to 15 years, 190 to 167; 16 years or more in difference of ages between man and wife showed 138 males to 113 females; when ages were equal, 34 males to 42 females were born.

When the woman was older than the man, 40 males and 38 females were born. When the man was older than the woman, and the woman's age was between 15 and 19, 280 male to 287 female children were produced; when the mother's age was between 20 and 25, 595 males and 513 females; when between 26 and 32, 74 males and 69 females. The observer concludes that when the man is at least 10 years older than the woman, and the woman is at the age of greatest reproductive activity (20 to 25), more male children than female are born. When man and woman are of equal age, female children predominate. Women older than their husbands produce more male children, but not an excess.—*Centralblatt für Gynäkologie*, January 22, 1887.

ANTISEPTIC OPERATION FOR CATARACT.—PANAS describes the following as his method of antisepsis in this operation:

He employs the biniodide of mercury in the following proportions:

Hydrarg. iodidi rubri . . .	gr. ¾.
Spirit. rectificat. (90°) . . .	ʒv.
Aquæ destill.	quart 1.

The field of operation is irrigated with this fluid by means of a small instrument resembling an ordinary medicine dropper. The corneal flap is made of the greatest possible regularity and of considerable size.

The toilet of the pupillary field is made as complete as possible; fragments of the cortex, blood, pigment, air bubbles are carefully removed. The pupil is made to contract completely, and the iris is wholly reduced before the eye is closed. Several drops of eserine are instilled into the eye, and a vaseline ointment of this drug is introduced at the conjunctival cul-de-sac.

The eyes are gently closed, and each is covered with linen anointed with

Hydrarg. benzoat.	grs. 23.
Cerati	ʒiijss.

Carbolized cotton, in light compresses, is applied over this.

The dressing is renewed every twenty-four hours, taking care to open the eye as little as possible for three or four days.—*Les Nouveaux Remèdes*, January 24, 1887.

UNUSUAL SITE OF A HYDATID CYST.—A case of hydatid of the scrotum came under the care of MR. PHILIP E. MUSKETT in the Sydney Hospital during the course of last summer, and as this is an example of a very rare condition, a brief note will be of interest. The patient, aged twenty-five, had been in Australia since he was three years old, and in a sheep district where the water was very bad for four years before the swelling appeared; this was first noticed eight years before he came under treatment. During that time it had been tapped twice, and, on the second occasion, also injected with iodine. When admitted to the hospital "there was an intra-scrotal tumor, about the size of a large emu egg, on the right side. It was smooth in outline, and its general contour nearly oval. The tumor was tense and dull on percussion, but gave to the fingers on palpation the sensation of fluid within. There was no impulse on coughing, and it was irreducible. The position of the testicle at its posterior part was made out by the presence of testicular sensation. The cord could not be clearly defined at the upper portion of the swelling. Light was transmitted by the ordinary manner of procedure, and, finally, the history had been that of an eight years' growth; painless, except from its mere weight." The cyst was tapped on the day following admission, and about an ounce of "serous-looking fluid" of pale yellowish tinge evacuated. Suppuration followed this tapping, and thirteen days later about six ounces of purulent fluid were drawn off. After this pus drained away from the puncture for eleven days, then a hydatid sac partly forced its way out, and was partly extracted through this opening. The sac was grayish in color, translucent, and elastic, and in its sunken condition would about fill an egg-cup. The swelling gradually subsided, the sinus closed, and the patient left cured.—*Lancet*, Jan. 29, 1887.

USE OF SALOL.—KLEEFELD, of Görlitz, reports from his clinic the following results obtained by the use of this drug. His use extended over a period of three months, and in thirty-five cases of rheumatism and varying forms of neuralgia he obtained the best results.

There followed no ill after-effects from its administration; ringing in the ears occurred infrequently and was not severe.

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It is tasteless, odorless; is taken willingly.

Its price is low.

Large doses, thirty grains, three times daily, were rarely given; as good effects were obtained from doses of fifteen grains three times daily. It bears very favorable comparison with antipyrin and salicylate of soda in the diseases mentioned.—*Berliner klinische Wochenschrift*, January 24, 1887.

MORTALITY AMONG THE HABITUAL USERS OF ALCOHOL.—BAER, of Berlin, has compared the results obtained in England by the investigation of the mortality among those who dealt in alcoholic drinks and who used them, with statistics obtained in Prussia. Baer's information was obtained from official returns, gathered among brewers, distillers, beer, brandy, and wine handlers, keepers of inns and restaurants, waiters, bottlers, etc.

14,295 males, of whom 13,528 were more than twenty-five years old, were included in the inquiry. His results are as follows:

The years of life to be expected by persons of various ages who were not handlers of alcohol were compared with the portion of life remaining to those who used and handled alcohol constantly:

Non-handlers of alcohol aged

From 25	had before them	. .	32.08	years.
" 35	" " "	. .	25.92	"
" 45	" " "	. .	19.92	"
" 55	" " "	. .	14.45	"
" 65	" " "	. .	9.72	"

Those who had constantly to do with alcohol had in the future—

From 25	years of age	. .	26.23	years.
" 35	" "	. .	20.01	"
" 45	" "	. .	15.19	"
" 55	" "	. .	11.16	"
" 65	" "	. .	8.04	"

Causes of death among the constant users of alcohol and those not concerned with it were

	General male population. Per cent.	Alcohol venders. Per cent.
Brain disease . .	11.77	14.43
Tuberculosis . . .	30.36	36.57
Pneumonia and pleuritis	9.63	11.44
Heart disease . .	1.46	3.29
Kidney disease . .	1.40	2.11
Suicide	2.99	4.02
Cancer	2.49	3.70
Old age	22.49	7.05

In England 14 per cent. of deaths were caused indirectly by alcohol, 4 per cent. directly.

Baer calls the attention of those interested in hygiene to these statistics.—*Deutsche medicinische Wochenschrift*, January 20, 1887.

EFFECT OF IRON ON THE COMPOSITION OF MILK.—DR. MENDES DE LEON has made a number of researches and observations on the supposed effect of taking iron on the composition of the milk secreted. He finds that milk always contains a minute quantity of iron, which differs in different species of animals, cow's milk, for example, being richer in iron than human milk. He gave various preparations of iron to a healthy multipara, and analyzed the milk, but was unable to detect any increase in the iron it contained, so that it would appear that iron given to the mother does not act on the child by passing into its system, but that it may act by improving the general condition of the mother, and thus causing her to secrete better milk.—*British Medical Journal*, January 29, 1887.

THE ELASTIC LIGATURE FOR UTERINE FIBROIDS.—The removal of uterine fibroids by means of the elastic ligature having been recently adopted by Prof. Slavyanski in four cases, a paper has been published by one of his pupils, Dr. Zhabotinski, dealing mainly with the history of this method of operating. He has collected accounts of 216 cases, of which 151 are British (44 being Dr. Robert Lee's), 27 French, 20 German, 10 Russian, 5 American, and 3 Italian. Of these 18, or 8.3 per cent., proved fatal—8 from peritonitis, 3 from septicæmia, 3 from exhaustion, 1 from pleurisy and peritonitis, 1 from meningitis, 1 from tetanus, and 1 from an accidental disease. In 12 of these death occurred before the tumor came away, and in the remaining 6 after separation had taken place. The author thinks that the opinions of West and McClintock on the dangerous character of this method of procedure were formed on the results of too small a number of cases, and that as most of the published cases occurred in pre-antiseptic times, the danger with modern methods may be looked upon as very slight. The mode of procedure which Prof. Slavyanski adopted, and in which Dr. Zhabotinski's opinion is the best, is to cut away the tumor after the elastic ligature has been applied to the peduncle. This seems to have given the best results, even before the days of antiseptics. The main indications for the elastic ligature operation are a pedunculated condition of the tumor, an accessible situation, and a disposition to hemorrhage.—*Lancet*, Jan. 22, 1887.

A PRESCRIPTION FOR ACUTE BRONCHITIS.—MUIRHEAD, in the *Edinburgh Medical Journal* for January, 1887, gives the following as serviceable in the preëxudative period of acute bronchitis:

℞.—Vini antimonialis . . . ℥iij.
Liquoris potassæ . . . ℥ij.
Liquoris ammoniæ acetat. . . ℥iij.
Syrupi aurantii . . . . ℥jss.
Aquam . . . . ad. ℥vj.—M.

Sig.—One tablespoonful in wineglassful of water every three hours.

ABSORPTION OF CORROSIVE SUBLIMATE BY THE SKIN.—DR. KOPFF states in the *Przeglad lekarski* that, having made seven experiments with careful analyses according to the methods of Schneider, Schriddle, and Lehman, with the view of determining the power of absorption possessed by the skin for corrosive sublimate, he has found that healthy skin can absorb small quantities from aqueous solutions containing from one to two per cent. of the salt. The quantity absorbed, which, however, is never large, seems to depend mainly on the degree of concentration of the solution. The chloride of mercury is also invariably excreted very soon after it has been absorbed.—*Lancet*, Jan. 8, 1887.

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SATURDAY, FEBRUARY 19, 1887.

LITHOLAPAXY IN MALE CHILDREN.

IN all of our treatises and text-books on surgery it is dogmatically asserted that crushing a stone in the bladder of impubic male subjects, with or without rapid evacuation of the fragments, is a bad operation. This statement is based, first, upon the assumed undeveloped condition of the genito-urinary organs, the narrowness of the urethra, and the small size and sensitiveness of the bladder; and, secondly, upon the old statistics of lithotrity—that is to say, the operation which requires more than one sitting for its accomplishment—derived from the Moscow Clinic and the Children's Hospital of Paris, which show 12 deaths in 83 cases, or 1 in 7, as against 1028 cases of lateral lithotomy, collated by Thompson in the same class of patients, with 68 deaths, or 1 in 15. From these facts, or assumed facts, lateral lithotomy is held to be safer in children than crushing; but, as in other surgical procedures, as, for example, abdominal surgery, the question arises whether tradition, fortified by groundless objections, badly adapted instruments, and insufficient experience, has not stood in the way of progress in this direction, and condemned many children to a dangerous and, as a rule, unjustifiable cutting operation, namely, epicystotomy, the present fashionable craze, which might have been relieved by properly and skilfully performed rapid crushing, with evacuation of the fragments?

The most satisfactory answer to this question is to be found in a series of papers on "Litholapaxy in Male Children" contributed to *The Lancet* for December 4, 11, 18, and 25, 1886, by Surgeon-Major Keegan, of Indore, Central India, which deserves the careful study of the practical surgeon. In this contribution the author gives a table of 58 cases, of which all save eleven are personal, of Bigelow's operation in children whose ages ranged from twenty-one months to fourteen years, with only 1 death, and that case should have been reserved for lithotomy, the stone having formed upon a "tilli" stalk. An analysis of the table indicates that the age of 27 patients varied from less than two to five years inclusive, and that the fatal case occurred in this class; that 24 were between six and ten years inclusive; and that 7 ranged between eleven and fourteen inclusive. The time occupied by the operation varied between four minutes for a uric acid stone which weighed seven grains, and three hours for an oxalate of lime calculus which weighed seven hundred grains, and required for its crushing not less than twenty-six insertions of the lithotrite. Of 56 cases in which the weight of the débris is noted, it was less than fifty grains in 26, from fifty to a hundred grains in 9, from one hundred to two hundred grains in 11, from two hundred to three hundred grains in 6, from three hundred to four hundred grains in 3, and seven hundred grains in 1. More than two thirds of the calculi were composed of uric acid or oxalate of lime.

From this presentation of the facts derived from a study of the table, we do not wonder that Keegan asserts that the only cases of stone in male children which he reserves for lateral lithotomy are those in which litholapaxy—not lithotrity, be it marked—is contraindicated by the existence of a very narrow urethra, or the presence of an abnormally large or hard calculus. The facts and figures support his views, and they also prove that the objections concerning the condition of the genito-urinary organs in impubic subjects are not valid. The undeveloped state of the prostate is an advantage; the bladders of boys suffering from a stone are, as a rule, healthy, and relatively capacious; those of subjects two, three, or four years old, being roomy enough to permit the efficient working of a suitable lithotrite and evacuating tube. The objection that the organ is extremely sensitive may be disregarded, as the operation is always performed under the influence of an anæsthetic. It is, moreover, not true that the calibre of the urethra is small, a fact of which all lithotomists are aware, and which leads them to use a relatively large staff. Should the meatus be small, an incision discloses that a lithotrite of considerable size will readily pass into the bladder, and it is due to the fact that the meatus was seldom divided in the old and dangerous operation of crushing in boys that the true calibre of the urethra was not discovered. A still further study of the table shows that from twenty-one months to thirty-four months a lithotrite, No. 7 of the English scale, was admitted and manipulated with ease; that during the

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third and fourth years, No. 8 was generally employed; and at five years, that No. 10 was resorted to in five-eighths of all cases. Without going into further details, it may be said that lithotrites, Nos. 8 and 10, were most frequently used, and that with a No. 8 lithotrite and a No. 8 evacuating catheter, mulberry calculi, weighing between two and three hundred grains, were disposed of in an hour's time.

Given a light hand and gentle and careful manipulation, litholapaxy in boys differs from that operation in adults only in the size and construction of the instruments used. The size of the lithotrite should correspond with that of the urethra, so that the surgeon should be provided with a set running from No. 6 to No. 10 of the English scale, the meatus being divided as a preliminary measure when it is small. The only perfectly safe form is one with the female blade completely fenestrated, which cannot become clogged with débris, a dangerous complication from the liability of wounding the urethra by sharp fragments. The evacuating catheter should be as short as possible, and be fitted with a stylet to dislodge any tightly wedged fragment which does not yield to the brisk working of the aspirator. Under all circumstances, it will be wise to pass the stylet before withdrawing the catheter from the bladder. It goes without saying that on account of the comparatively small size of the evacuating tube the stone should be pulverized, and that the surgeon should not be in a hurry to finish the operation.

The cases tabulated by Keegan were not selected, but taken as they came, some being feeble, and others suffering from chronic enlargement of the spleen from chronic malaria. The average stay of the patients in the hospital was seven days as against seventeen for lateral lithotomy, and many of them were practically well the day following the operation.

Litholapaxy in male children is certainly not to be undertaken by a novice. As in the operation in the adult, it requires skill, dexterity, patience, and judgment, and the surgeon who has had some successful experience with it in the adult is, with the aid of suitable instruments, more than justified, in the face of the facts which we have presented, in resorting to it.

It is well known that lateral lithotomy in impubic subjects is followed by most satisfactory results, the general mortality being only about 1 in 17. In the Norfolk and Norwich Hospital, 1 patient in every 15½ perished; in the St. Waldimir Hospital, of Moscow, 1 in 16⅓ succumbed, while the 72 cases of S. D. Gross show only 2 deaths, or 1 in 35. Turning to India, the results are far more striking. Thus, Rai Ram Naran Dass, of Calcutta, lost 1 child in every 27⅓, while Freyer cut 143 boys without a single death, a success as brilliant as it is unequalled. If the operations done in India alone be compared, the 225 lateral lithotomies of Dass and Freyer afford only 3 deaths, or 1 in 75, as against 1 in 58 for litholapaxy.

From the foregoing data it may be asked, Why practise, as advised by Keegan, a comparatively untried operation in a class of subjects in which lateral lithotomy affords such satisfactory results? At the present time, the figures are on the side of the cutting operation, and we ourselves hold that it will be the operation for children until further experience demonstrates the comparative safety of rapid crushing with evacuation of the fragments. In the meanwhile, the unlooked-for success attained by Keegan demands that surgeons who have had experience with crushing in adults should resort to it in children. If a cutting operation, with its attendant risks from wound complications, can be replaced by a procedure which brings about a more rapid cure and does away with suffering on the part of the patient and personal anxiety and inconvenience on the part of the surgeon, it certainly is the operation which should be selected when it is not absolutely contraindicated.

The recent impetus given to suprapubic lithotomy, especially by German and French surgeons, who appear to be remarkably unsuccessful with perineal lithotomy, has led to its great abuse when applied to young subjects. Instead of limiting the method to large and encysted calculi, many operators other than those who enjoy few opportunities of cutting for stone have resorted to it for concretions of such small size that they could readily and safely have been removed by perineal cystotomy. The procedure itself is an easy one, and the risk from hemorrhage is very slight; but its results continue to be so very bad that it is time to cry a halt. Indeed, since its revival, additional experience seems to show that it ought to be utterly relinquished, except under the conditions to which we have adverted.

This is not a harsh criticism. Thus, of 133 examples of epicystotomy in impubic subjects collated by Dulles, up to 1875, 21 per cent. died. The statistics of Gross, of Nancy, brought up to a few months ago, and including the cases treated by improved antiseptic methods, comprise 307 cases, with a mortality of 21.62 per cent. Hence, the rate of death is greater by 7 per cent. than from the old operation of crushing. Schmitz, of St. Petersburg, records, in Langenbeck's *Archiv*, Bd. xxiii. Heft 2, 1886, 41 examples of the high operation, with 15 deaths, or a mortality of 36.5 per cent. Of the 18 operations done in preantiseptic days, 10, or 55 per cent., perished; while of the 23 performed under antiseptic precautions, 5, or 21.73 per cent., succumbed. The latter figures show a remarkable agreement with those of Dulles and Gross, and, with Schmitz, we can affirm that the improved methods of treating wounds have

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not diminished the death-rate for the high operation in boys. Hence, the present indiscriminate resort to epicystotomy in young males cannot be too strongly condemned.

In the present state of our knowledge lateral lithotomy may be said, without fear of contradiction, to be the operation for boys of all ages, although it may properly give way to the still safer median method in lads after the seventh year in whom the stone has not a larger circumference than rather more than two inches. At an earlier age the space is too small to remove any but a small concretion without much bruising. When a calculus is encysted, or when its bulk is too large to hope for its easy extraction through a perineal wound, epicystotomy is eminently proper, care being taken to use strict antiseptic precautions, and to suture the bladder. In the meanwhile we trust that the surgeons of this country and of Europe, who are known to deal largely with cases of urinary calculi, may be induced to furnish themselves with the proper instruments, and test the merits of Keegan's conclusions. If further experience proves that litholapaxy constitutes the safest and most satisfactory mode of ridding a child of a stone, it ought to replace lithotomy just as it is doing in the adult in suitable cases.

THE TREATMENT OF LABOR COMPLICATED BY A FLAT PELVIS.

THE proper management of simple vertex presentations, when the progress of labor is retarded by a diminished conjugate diameter, is a subject that must, at some time, have engaged the attention of all practical obstetricians. An expression of opinion will, therefore, be welcomed from WINTER, Schröder's assistant in Berlin, whose position insures him a vast experience, not only in the Frauenklinik itself, but also in the immense outdoor service connected with it.

As a result of his experience, and after a study of the statistics of labor complicated by a flat pelvis, Winter arrives at the following conclusions: That, in primiparæ, as the abdominal muscles are tense, powerful, and capable of giving efficient aid to the contractions of the uterus, as the child is not so likely to be as large as in subsequent labors, and as the lower uterine segment is not so easily stretched to a dangerous degree of attenuation, the expectant treatment will be found, in the majority of cases, to give the best results; operative interference being resorted to, as a rule, only after the head has become engaged in the superior strait, when the labor may be terminated by the application of the forceps. In multiparæ, on the other hand, as the child is apt to be larger than in first labors, as the abdominal muscles are relaxed and cannot be depended upon to aid efficiently the expulsive efforts of the uterus, and as the lower uterine segment may soon become excessively stretched, the early performance of version will often avert the danger of a ruptured uterus, or the formation of fistulæ, the result of prolonged pressure upon the maternal soft parts.

Winter thus occupies middle ground between the views of Schröder and Winckel, the former advocating early version in cases of flat pelvis when the engagement of the head in the superior strait is delayed, although there is nothing in the general condition of the mother or child that demands operative interference; the latter, on the contrary, advising an expectant treatment as long as the general condition of the mother and child remains good. The reasons, more in detail, that influenced Winter in forming the opinions that he holds, and the statistics of labor in multiparæ and primiparæ, treated actively and expectantly, may be found in the last number of the *Zeitschrift für Geburtshülfe und Gynäkologie.*

BIRTH-MARKS AS EVIDENCE.

A YOUNG woman in the ninth month of pregnancy lately appeared before a Mercer County, Pa., Justice of the Peace, and swore out a warrant for the arrest of a man on charge of assault, alleging that he had choked her, and twisted her left wrist, almost dislocating it. There were no witnesses, and the man's discharge was confidently expected. At the trial, which took place some weeks after the birth of the baby, the lawyer for the defence called for acquittal on the ground of lack of evidence, but the prosecution asked that the baby be admitted in evidence. The jury was then shown the marks of four fingers and a thumb on the neck of the infant, and a left wrist twisted out of shape and swollen, as if it had been suddenly wrenched. These birth-marks corresponded exactly with the injuries which the woman swore to having received a month before the baby's birth. It is stated that the prisoner was convicted.

Without doubt there are instances in which maternal impressions have influenced the physical condition of the fœtus, even so far as to induce local tissue changes. Such cases are, however, extremely rare, and for one genuine there are fifty spurious examples. On general principles we should say the judge should not have admitted the baby as testimony, and certainly no man should be convicted on such trashy evidence as is afforded by ordinary birth-marks.

PROTECTIVE INOCULATION AGAINST RABIES.

SINCE writing the editorial note in THE NEWS of last week, referring to Ernst's work, the full text of VON FRISCH'S latest cummunication has come to hand in the *Centralblatt f. Bacteriologie und Para-*

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sitenkunde, No. 3, 1887. Several of his conclusions are opposed to those of Pasteur. Thus, he finds that animals inoculated with the virus of progressive intensity — desiccated cords of from fifteen to one day—do not resist infection with the fresh virus of street rabies. With few exceptions, animals submitted to the preventive treatment after subcutaneous injection with street rabies, died of the disease even when the incubation was prolonged to thirty-four days. Von Frisch thinks that more work must yet be done before we can with certainty adopt a preventive inoculation in cases of hydrophobia in man. From the fact that the more intense method of protective inoculation introduced recently by Pasteur, will itself produce the disease in animals, there is a danger that by this means the disease may be communicated to man. We trust that the experiments so favorably begun at Harvard may be continued with a view of settling these disputed points.

DISINFECTION OF THE HANDS.

REFERRING to the fact that after autopsies in certain cases, such as puerperal peritonitis and typhoid fever, the fingers remain impregnated for hours with a fetid odor, of which they cannot be deprived by repeated washing, DUCLOS states, in the *Revue de Thérapeutique*, that this can be instantaneously removed by the use of the potassic permanganate and the sodic bisulphite. The permanganate may be employed in the proportion of 5 to 1000, or 5 to 100, and the commercial solution of the bisulphite diluted with five parts of water. The method advised is as follows: First thoroughly wash the hands with soap and water; then in the permanganate solution, the time varying according to its strength, two minutes being sufficient if the solution be concentrated; the hands are then placed in the solution of the bisulphite, and they become at once white, the discoloration caused by the permanganate instantly disappearing.

Duclos claims that this method not only completely removes the repulsive odor, but also thoroughly disinfects the hands, and that it will prove useful to both surgeons and accoucheurs. So far as the latter class is concerned, they have no business with post-mortem examinations of infectious cases; and doubtless should the plan advised by Duclos be employed by them they ought to add to it the careful and thorough use of the nail-brush, to be followed by dipping the hands in a solution of corrosive sublimate 1 to 1000.

A MEETING was held in Brooklyn, on February 7, by the physicians of Kings County who are in sympathy with the "National Code of Ethics," to consider the propriety of organizing a new society. The necessary committees were appointed and action taken which will in the near future effect the establishment of a new county association.

AN effort has been made recently by the Kings County Medical Society to increase their building fund now in bank, amounting to $4000. The members have thus far subscribed about $6000, and they now look forward to the purchase of a property suitable for their meetings and for library purposes.

THE JOHNS HOPKINS HOSPITAL had expended upon its buildings, during the past year, $112,000, and during the current year $150,000 more is available, and this sum will almost complete the work on the buildings and grounds. The site is a high elevation, commanding a view of the entire city and harbor of Baltimore. It is terraced and ornamented with plants and trees. It is reported that the hospital will be completed and opened in October, 1888, with a capacity of three hundred or more beds. All expenses on account of construction and equipment have been defrayed from the income, which annually yields about $150,000, and the original endowment remains intact.

DR. J. C. SHAW recently resigned his position as Superintendent of the Kings County, N. Y., Asylum, resuming practice as a neurologist in Brooklyn. The vacancy has just been filled by the appointment, by the Charities' Commissioners, of Dr. John A. Arnold, the County Hospital physician, to be the general superintendent of the asylum and of the new "county farm" growing up at St. Johnland. He will be assisted by Dr. G. N. Ferris, who will reside at the asylum, and by Dr. D. A. Harrison at the St. Johnland farm.

A CASE of chloroform death occurred in this city last week in the practice of Dr. Wm. H. Pancoast. The anæsthetic was administered to a man aged thirty for the purpose of having adhesions of the finger tendons of the hand broken up. The usual remedies were applied without avail. The autopsy revealed the kidneys much diseased and an unusually fatty liver and heart, and a thin right ventricle.

PROFESSOR BILLROTH has been recently made a peer of the Austrian realm. Two members of the medical faculty of Vienna are now peers, Brücke and Billroth.

THE collections for the Hospital Saturday and Sunday Association fund, in Brooklyn, have this year amounted to $6227.48, an increase, as com-

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pared with those of the year previous, of $595.14. This charity has just closed its fifth year, its first appeal having been made in 1882.

REVIEWS.

THE SCIENCE AND ART OF OBSTETRICS. By THEOPHILUS PARVIN, M.D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College, Philadelphia. 8vo. pp. 701. Philadelphia: Lea Brothers & Co., 1886.

WHILE, in these days of many books, the literature of many departments of knowledge is overcrowded and a new volume should indeed show good reason for its existence, yet it cannot be said that there are too many medical writers in this country, or that those that we have are too prolific. Students of medicine, thereby meaning, in the widest sense of the term, those that are about to end their studies with their lives as well as beginners, will be glad to welcome Dr. Parvin's work on Obstetrics, from the mere fact that it adds another to the list of distinctively American medical books; but being read, the book will be welcomed for itself, for, compact in form yet scholarly and in many respects exhaustive, it may well serve as a text-book for the student, or as a book of reference for the busy practitioner.

There are several points, however, which the careful student will feel disposed to criticise. The great influence of French writers and of the French school upon the book is at once apparent, while the German authorities are comparatively neglected, which is unfortunate, for in medicine, as in many other respects, Germany has of late years surpassed France. Those obstetricians who are advanced students of pathology will regret that the fact that puerperal fever is nothing but pyæmia, septicæmia, erysipelas, scarlet fever, or diphtheria, these diseases occurring in the puerperal state, is not more sharply emphasized; that more definite information is not given about the four pus-producing micrococci of pyæmia, the vibrio and the production of a ptomaine in septicæmia, or the presence of the chain micrococcus of Fehleisen in certain cases of so-called puerperal fever.

The description of rupture of the uterus will prove perhaps the least satisfactory portion of the book. The statement that "the lesion may occur in any part of the organ, neck, body, fundus, or sides," stands in decided contrast with Schröder's assertion that "the tear is never found in the contracted muscular portion of the uterine body," and nothing whatever is said of the appearance of the contraction-ring, while the stretched walls of the lower uterine segment seem to be regarded, for the language is rather ambiguous, as the walls of the cervical canal.

On the whole, however, we believe the book will be a source of pleasure and profit to those who read it carefully. The obstetrical operations are particularly well described, and no uncertain note is sounded in regard to the importance of antiseptic precautions not only during such operations, but also in the general management of labor and the puerperal state.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, January 26, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D. IN THE CHAIR.

DR. THOMAS S. K. MORTON read a paper on

ABDOMINAL SECTION FOR TRAUMATISM, WITH REPORTS OF FIVE CASES AND TABLES OF ALL RECORDED CASES.

The term "abdominal section for traumatism" is meant to include those cases where the operator deliberately opens the belly, or greatly enlarges an existent wound for the purpose of discovering intraperitoneal wounds, and, if they are present, repairing them as far as possible, together with more or less final cleansing of the peritoneal cavity. Such cases as those in which wounds of prolapsed viscera are simply repaired, and the parts returned to the abdominal cavity, are not included.

Dr. Morton has collated the records of fifty-seven cases of laparotomy for trauma, which include all the cases he has been able to find in the literature of the world. Of these, 36 died, and 21 recovered: mortality, 63 per cent. These 57 cases were done by 42 operators, viz., 23 United States operators did 35 operations, with 11 recoveries, and 24 deaths: mortality, 67 per cent. 9 English operators did 10 cases, of which 3 recovered, and 7 died: mortality, 70 per cent. 2 Australian operators did 2 operations, with 2 deaths. 2 French operators did 2 operations, with 2 deaths. 2 Russian operators did 2 operations, with 2 recoveries. 1 German and 1 Swiss, each did an operation, with success. 1 Italian operator did 2 operations, with 2 recoveries.

7 operations have been done in Philadelphia by 5 operators, with 2 recoveries and 5 deaths. 5 of these have been performed at the Pennsylvania Hospital by 3 operators, with 2 recoveries, and 3 deaths.

Of the 57 tabulated cases, 38 per cent. were for pistol- or rifle-shot wounds; 35 per cent. for stabs; 17 per cent. for ruptured bladder, and 10 per cent. for ruptured intestine. In every case which died after operation, lesions certain to cause death, if uninterfered with, were found. One case of penetrating wound was opened, in which no visceral injury was found; it recovered.

The indications for abdominal section for traumatism are in many cases very clear; in others, with only our present knowledge, exceedingly obscure. Taking up the consideration first of wounds, the operation is clearly indicated in every case in which penetration of the abdominal cavity is proven, and with fair surroundings it becomes one's duty to open the abdomen and search for wounds, for there are no omnipresent symptoms which invariably indicate intraperitoneal wounds, even when extensive. With reference to cases suitable for operation, besides gunshot wounds, stabs, etc., which have already been operated upon, he conceived that in the future many other traumatic conditions will be subject to interference by section, such as rupture of the stomach, gall-bladder, spleen, or kidney, ruptured bloodvessels, various hæmatoceles, etc.

Where there is a wound of the anterior wall of the abdomen, first prove perforation by cutting down to the peritoneum. That should be a sufficient warrant for

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section. In wounds of the back some judgment must be exercised. In the majority of the cases recorded, and in nearly all the successful cases, the incision was median. In several instances, where section has been done for a special purpose, such as removing an injured spleen, the incision has been made on one side of the median line. In one case of stab wound which he saw, the original wound was enlarged and gave rise to great difficulty in the subsequent steps of the operation. One wound was overlooked in that case, which error was largely due to the position of the incision. The length of the abdominal wound is to be governed by the circumstances of the case. There is no harm in a long wound if it be properly treated. After opening the peritoneum, note carefully the abdominal contents. If we find feces, we are encouraged to prolong the search until the wound is found. If there is blood, we should look for the vessel injured. The search for wounds should be thorough and systematic. In most of the cases where wounds have been overlooked, it has resulted from not making a systematic examination. We should begin at the entrance of the œsophagus into the stomach, if it is possible to reach so high, go over the stomach and all the intestines, examine the mesentery, the rectum, and bladder, and look at the spleen. Unless this is done, wounds will sometimes be overlooked, and even with the utmost precaution they will sometimes escape detection. Only those who have seen these cases can imagine the difficulty experienced in finding such wounds, especially when the upper part of the transverse colon and the surrounding omentum are involved. If the intestines are much distended, it may be necessary to puncture them. It is important to remember that extravasation has followed such a puncture, and it should always be closed with a Lembert suture. If the vermiform appendix or an epiploic appendix is injured, it should be excised. In wounds of the intestine, it makes a difference whether the injury is the result of a gunshot or of a stab. Gunshot wounds are more apt to slough than knife wounds, and where many of the former are located close together, it has been found advisable to excise a portion of the gut including the numerous lesions. Probably a foot of the bowel may be excised without much disadvantage. Six or eight feet have been excised, but in this case the operation was followed by emaciation and death. In such a case it would probably be better to make several excisions. Perforations when found should be turned into the bowel by the suture of Lembert. Wounds of the large intestine and stomach are to be treated in the same way.

Where the ball has perforated the mesentery, the wound edges should be excised. This is the opinion of those who have done most operations. The opening is then brought together with stitches on both sides, or passing entirely through. If the omentum be badly injured, no harm will come from its excision. It may be ligated in various places and the whole cut off without injury. In a hernia case, he cut off what he supposed to be almost the whole omentum, and the man recovered perfectly. Where the spleen is wounded, the only method seems to be to excise the organ. This has been done, so far as he knew, twice. Wounds of the liver have been met with a number of times and all the cases have died. If the kidney is extensively wounded, its excision or complete drainage is indicated. If the ureter is divided, the only remedy is excision of the corresponding kidney. If the projectile has gone through the diaphragm, the same operation as in the case of the mesentery would be indicated, namely, excision of the edges and sutures. Of course, all bleeding vessels are to be tied. If this is impossible, the main trunk, even if this be the aorta, must be tied. Wounds of the uterus and appendages have not been dealt with, but would probably require excision.

Then there is another class of wounds entering the abdomen—that is, wounds through the vagina and rectum; for instance, a stab wound through the vagina. If we knew that it penetrated, abdominal section would be indicated. In all these cases contusions of the omentum and intestine frequently are found. In time, nearly all of these will slough and give rise to pus. In several cases death has been attributed to this cause. All severe contusions involving the mesentery or omentum should be excised. When they involve the intestine, the peritoneum should be united over them with Lembert sutures. The suture materials which he has seen used have been silk and catgut, and he thinks the latter preferable if fine and chromicized.

The sooner the operation is performed, the better are the chances of the patient. The cases in which the time is reported number forty-five. The average time after the injury for which operation was done, was eighteen and a half hours. The average time after the injury when the operation was begun in the successful cases was seven and three-quarters hours; the average in the fatal cases was twenty-three and one-quarter hours. These are significant facts.

It is always difficult to decide, in any given case, whether drainage should be employed or not. If there have been extravasation and numerous wounds, drainage seems to be indicated. Glass and rubber tubes have been used with apparently equal success and failure. He thought that tubes of glass or other hard material are to be preferred. Where there has been extravasation of the contents of the stomach or intestine, this is usually followed by great oozing of serum.

The final steps of the operation are irrigation and cleansing. Irrigation should be very large in quantity, and if the patient is suffering from shock, there is no better treatment than pouring hot water through the abdominal cavity. It probably acts directly upon the solar plexus. He has seen this used frequently with marked benefit. The patient will be in far better condition after the use of a gallon or more of water at a temperature of 100° to 110°, than before its application. It has occurred to him that in profound shock from other causes, it might be well to puncture the abdomen with some form of double canula and thus irrigate the abdominal cavity with large quantities of hot water. What shall be put in the solution used for irrigation? Several agents have been so used: Water, distilled water, boracic acid solution, mild solution of bichloride of mercury, and solution of carbolic acid. Carbolic acid should be expunged from the list. Bichloride of mercury, when employed, should be in very dilute solution—1 to 5000 or 10,000. Boracic acid was used in two successful cases in three per cent. solution in unlimited quantities. In four cases at the Pennsylvania Hospital the bichloride solution in the strength of 1 to 5000 and 1 to 10,000 was used, and

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apparently without any bad effect. It was used in both of the successful cases there. Distilled water is very good, and especially in cases where extravasation has not occurred. Where there has been extravasation, purulent peritonitis set up, or it is not certain that all foreign matters have been removed, an antiseptic is indicated. Where we have a solution like that of boracic acid, possessing fair strength, with little danger of poisoning, it should be used. The parietal wound is closed and dressed in the usual manner.

One question in the after-treatment would arise in cases where a drainage-tube had not been left, and would be with reference to reopening the wound and draining where a large amount of serum was present. Each individual case must be decided for itself. The onset of violent peritonitis would be an indication for reopening the belly, irrigating and draining it.

The total number of cases of gunshot wounds recorded is 22. Of these, 5 recovered and 17 died, a mortality of 77 per cent. Of these 22, 18 were done in the United States; 4 recovered and 14 died, a mortality of 77 per cent. The foreign cases were 4 in number, with 1 recovery and 3 deaths, a mortality of 75 per cent. The first recorded case of gunshot wound treated by abdominal section is that of Dr. Kinloch, of North Carolina, in 1881. The first recovery was the case of Kocher, of Switzerland, in 1883. The first American recovery was a case operated on by Dr. Wm. T. Bull, of New York, in 1884. These 22 cases were done by 15 operators—11 American and 4 foreign. In Philadelphia there have been 2 cases of abdominal section for gunshot wound. One was done at the Pennsylvania Hospital two days since by Dr. Thomas G. Morton. In one case of gunshot wound a wound of the intestine was overlooked, with a fatal result. McKellar, of London, reports a case of two wounds of the lower portion of the sigmoid flexure in which it was impossible to introduce stitches. All that he could do was to throw a ligature around the wounds. The patient died, and fecal extravasation was found at the autopsy. In this case rectal distention by a colpeurynter might have been of some assistance, lifting the bowel up so that stitches could be inserted, for the openings were on the anterior wall. Such cases are, however, exceedingly difficult to remedy.

In all the cases of stab wounds, with the exception of one, the wound was produced by a knife. In that one instance, it was caused by a sharp splinter of wood. As we should expect, this table presents the most favorable showing. The total number of cases reported is 19. Of these, 12 recovered, and 7 died; a mortality of 36 per cent. These operations were done by 14 operators—10 American and 4 foreign. The 10 American operators did 15 operations, with 8 recoveries, and 7 deaths. The foreign operators did 4 operations, and all recovered. The first case on record is that of Kwiectuski, of Russia, April 15, 1883. The first American one is that of Dr. W. O. Roberts, operated on August 28, 1885. The first recovery was the case of Kwiectuski. The first American recovery was the case of Dr. Roberts. The credit of the first recovery properly belongs to Dr. Roberts, of the United States, for the Russian operator had a large wound already made, which he enlarged to a certain extent, and sought for the intestinal wounds. Dr. Roberts had but the small opening made by a penknife.

The total number of cases of ruptured bladder reported is 10, with 4 recoveries and 6 deaths, a mortality of 60 per cent. There were 9 operators—3 American and 7 foreign. The American operators performed 3 operations, with 1 recovery and 2 deaths. The foreign operators performed 7 operations, with 3 recoveries and 4 deaths. The first recorded case of abdominal section for ruptured bladder is that of Walters, of Pittsburg, in 1862. This case was also the first recovery. In Walters's case he diagnosticated rupture of the bladder, with infiltration of the peritoneum with blood and urine. He opened the abdomen, cleaned it out, and put in a drainage tube, but did not sew the bladder wound. The second case was that of Alfred Willits, of London, operated on June 12, 1876. This case died. The second American case was that of Dr. Bull, operated on October 27, 1884. This case also died. Two recoveries have recently been reported by MacCormac. Philadelphia has had one case, which was operated on by Dr. Joseph M. Fox, August 16, 1886, with a fatal issue.

The symptoms of ruptured bladder are more definite than those of most other cases. The condition of the bladder at the time when the injury is received is of some importance, but cannot always be ascertained. Shock is usually present, as in other cases. Pain in the hypogastrium, fruitless efforts at micturition, vomiting, hiccough, distention of the abdomen with fluid, the withdrawal of blood or bloody urine by the catheter, are all good indications. If there is no urine in the bladder, or none comes in, it is a fair sign. The catheter can sometimes be introduced to a great length, and occasionally the rent in the bladder wall may by this means be detected. The withdrawal of an enormous quantity of fluid is another indication. If warm water is injected, it may be felt by the patient in the loins and other locations. With the catheter in the bladder, the liquid sometimes ebbs up and down with the movements of respiration. Recently Dr. Weir, of New York, has suggested a test for ruptured bladder, which consists in injecting a certain amount of fluid and percussing over the region of the bladder. If a definite outline of percussion dulness is noted, it is a fair inference that the bladder is not ruptured.

It is important to determine whether the rupture is extra- or intra-peritoneal. Stephen Smith has shown, in a collection of 65 cases, that the peritoneum is injured in 80 per cent. of the cases. Max Bartles found, in an examination of 166 cases, that the rent was intraperitoneal in 98, and extraperitoneal in 54. In 84 cases of intraperitoneal rupture the rent was situated at the fundus in 40 cases; in front, near the fundus, in 9; posteriorly in 33; and at the side in 2 cases. In 50 cases of extraperitoneal rupture, the rent was at the neck in 19, anterior in 23, posterior in 2, and at the side in 6. In 15 of these cases there was fracture of the pelvis. In these cases, as a rule, the urine found in the peritoneum is healthy, and not decomposing. An interesting paper has been published by a Russian, giving the toxic effects of urine which has escaped into the peritoneal cavity.

The method of operating is an interesting one. Having determined upon interference by section whether the diagnosis be positive or not, a median incision should be made and enlarged to suit the convenience of the operator. The incision may at first be made down to the bladder, as for a suprapubic lithotomy. If

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there is a wound in front; you may feel it if it enters the peritoneal cavity; but even this is fallacious. Having found the wound in the bladder, the first thing is to clean the peritoneal cavity. Next, it is necessary to get the bladder into a position to suture it. This has been, until recently, found one of the most difficult steps of the operation. To obviate this, distention of the rectum with a colpeurynter has been practised. More recently, as in the case of Fox, sutures have been introduced on either side, and may be combined with the use of the colpeurynter. MacCormac, who found considerable difficulty in bringing up the bladder, made a lateral incision on each side through the peritoneum. This liberated the bladder very greatly. These peritoneal wounds he stitched together in the usual way, but this might be improved upon by introducing the stitches as Dr. Emmet does when sewing up his relaxation incisions of the vagina or elsewhere—that is, by uniting the wound by stitches passed into its longitudinal diameter. It has been found that the cases in which the sutures penetrate all the coats of the bladder invariably terminate fatally. This must be borne in mind, and the sutures passed through only the serous and muscular coats. The bladder wound is to be brought together with Lembert sutures of silk or catgut.

The after-treatment brings up the question of drainage, which has been discussed. A catheter should be left in the bladder. Another important thing is to prove that the stitches effectually control the opening in the bladder. This is done by injecting some solution—better, a weak antiseptic solution—into the bladder. If there is any leakage, additional sutures should be introduced; or the first row of stitches, by a second set, turned in.

The total number of cases of rupture of the intestine reported is five, of which number none recovered. 1 operation was performed in America and 4 abroad—2 in Australia, 1 in France, and 1 in England. The first recorded case is that of F. H. Girdlestone, of Australia, February 14, 1883. The only American case recorded is that of Dr. E. A. Wagner, on August 2, 1886. One case fell, and pressed a truss down upon a descended hernia; one was thrown from a horse; two were kicked in the abdomen; and one was crushed by a horse. In five cases the small intestine was ruptured, and in one the colon was the part involved.

DR. NANCREDE desired to say a few words about his own case, which, he thinks, shows the important point, although he could not secure a post-mortem, that peritonitis is not the only thing we should dread. He saw the boy six hours after he had been shot. The wound was a little to the left and above the umbilicus. He vomited blood one hour and a half after admission, although the operation showed that both the anterior and posterior walls of the stomach had been perforated. He determined that the wound was a penetrating one, and made an incision in the median line, and he would warn any against enlarging the existing wound, if not in the median line. He found a wound of the anterior wall of the stomach, which he closed with fine silk, using a fine sewing-needle. Then he found a wound in the anterior wall of the duodenum, which he sutured. He next looked for and found a wound of the posterior wall of the stomach. A large ragged wound in the posterior wall of the duodenum was also discovered. Examination from the stomach down almost to the ilio-cæcal valve revealed no other wound. A careful toilet of the peritoneum was made and the wound closed. The boy did well for forty-eight hours, and never presented the least symptom of peritonitis. When peritonitis comes on suddenly there may be a profound condition of shock which will not admit of rise of temperature, rigidity of the abdominal muscles, flexion of the limbs upon the pelvis, pain, or any of the usual symptoms; but this is not the case in slowly developing peritonitis. The boy died on the third day with a series of convulsions, with a very high temperature. He believed that he died of sapræmia, due to the absorption of ptomaines. The cold water coil, which was used almost from the outset in both of the successful cases of Bull, of New York, was not used, and he thinks more opium was given than was wise.

We have long been taught to give opium in full doses in traumatic peritonitis, but he believes that many cases are killed by this treatment. When the initial symptoms are marked by collapse, low temperature, rapid, feeble pulse, and clammy skin, if you give large doses of opium simply to ward off the expected inflammation, you will probably kill the patient. If you give moderate doses of morphia with large doses of atropia, you will possibly rally the patient and carry him over the shock stage. He thinks that large doses of opium should not be given in peritonitis, unless guarded by atropia. It should be given by hypodermatic injection, for it is uncertain how much will be absorbed from the stomach. At the end of a peritonitis where, from the respiratory centres becoming involved and from interference with the action of the diaphragm by tympany, hypostatic congestion of the lungs is taking place, persistence in the use of large doses of opium will kill the patient. If the opium is reduced to a minimum and given with large doses of atropia, or atropia is alone exhibited, you will sometimes tide the patient over.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, January 26, 1887.

R. F. WEIR, M.D., IN THE CHAIR.

OPERATION FOR THE RELIEF OF CARCINOMA OF THE RECTUM.

DR. LANGE presented a patient, sixty-five years of age, with paralysis agitans, the result of prolonged submersion in icy water several years before. He entered the German Hospital in October, complaining of difficulty in defecation of four months' standing. On examination he was found to have adeno-carcinoma of the rectum, and the diseased portion was removed in the usual manner, four inches of the gut being excised. The wound healed well. There was some constriction a short distance from the anus, probably due to the contracted sphincter internus. He had control over his bowels until he reached the closet, but was unable to have a thorough evacuation, so that he was inclined to have another movement soon after. In this case no attempt was made to unite the ends of the *levatores ani*, and the patient was obliged to wear a supporter. In another patient the attempt had been made, and on introducing the finger into the rectum it was evident that there was some voluntary muscular action.

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ACUTE OSTEOMYELITIS OF THE FEMUR AT AN EARLY AGE; SECONDARY NECROSIS IN LATER YEARS; NECROTOMY; PLASTIC OPERATION FOR CLOSURE OF A LARGE BONE-CAVITY IN THE LOWER PART OF THE FEMUR.

DR. LANGE presented a patient with the following history: The patient, whom you see before you, is forty-six years old, and is a native of northern Germany. When ten years old, he had, according to his statement, a serious and very painful affection of his right knee and thigh, which kept him in bed for one year. His physician had proposed amputation to him, but, through the wisdom and cleverness of a midwife, as he said, his limb was saved, and he was able to get up on crutches. A number of sinuses had opened, and for about eleven years suppuration persisted, but then ceased. The shape and shortening of the limb have always been the same since that acute disease as at present, and at no time had any surgical operation been done, nor had any bone come away spontaneously. Until about sixteen years ago (that is, about nine years) all remained healed. Then, however, sinuses formed again, and did not heal. I saw the patient about one year ago. He himself attributes this renewed suppuration to his having habitually a board on his knee, over which he used a heavy flat-iron, while working at his trade as a tailor.

There existed a profuse, offensive discharge from a fistulous opening near the external edge of the right patella, just above the condyle, at the bottom of which necrotic bone could be felt. The whole limb now presents an extreme deformity. There is bony ankylosis of the knee-joint at an angle of about 140 degrees. The femur is about eight inches shorter than that of the other side, and there is a distinct angular bend at a point between the middle and lower third of the femur.

Just about a year ago I performed necrotomy, by making an H-shaped incision, forming flaps, which included the periosteum, and removing the patella and the anterior portion of the lower third of the bone, so that, after the removal of the numerous sequestra which you see here, a shallow bone-cavity was formed, into which the soft parts were depressed and fixed by strong straight needles. The healing process took place very rapidly, so that after about four or five weeks the patient went home with a few granulating, superficial wounds, which finally healed under an ointment-dressing. About three months later a fistula formed again, and in September of last year I had to make a thorough revision and to scrape out and dissect away some carious bone at the bottom of the former cavity. At present everything seems perfectly solid and cicatrized, and the patient uses his leg, as well as his high heel (for equalizing the shortening) allows him.

The case is very interesting in some respects. When a boy of ten, the patient doubtless had a severe acute osteomyelitis with spontaneous fracture of the thigh, but no necrosis of any great extent could have existed. Otherwise the suppuration would not have ceased for fully nine years. No doubt the pieces of dead bone, which were found at the operation a year ago, belong to a process of secondary necrosis. They also present a character quite different from that of the usual sequestrum. They look like dead cancellous tissue, and were found in a portion of bone which normally has no bony substance in its centre. The whole lower third of the thigh-bone proved to be filled with a new formation of bone that had undergone partial necrosis, apparently in a very chronic manner. The primary acute ostitic process did not immediately result in necrosis, though it must have been very severe, to judge from the spontaneous fracture of the bone, but it led to diffuse ossifying ostitis. Probably some of the infectious material remained encysted, until subsequently, in consequence of some noxious influence, it must have been all free, and by its injurious action upon the newly formed central osteophytic substance, caused necrosis of the same.

This secondary necrosis, or breaking down of newly formed substance, especially in the lower third of the femur, is not uncommon. About three years ago he presented before this Society three cases belonging to this group. In all of them extensive cavities in the lower part of the femur existed, and plastic operations, similar to that just described, proved to be effective. If let alone, these bone cavities in persons of somewhat advanced years will not heal. The cavity must be obliterated by a plastic inversion of the soft parts, which, in cases like these, where bony ankylosis of the knee-joint exists, are best taken from the anterior aspect of the thigh, the patella being removed. These operations must, of course, be done aseptically, if union of the flaps by first intention is to be expected, and it is by no means easy to do the operation with such thoroughness that a perfectly aseptic wound is left. The sharp spoon, chisel, and disinfecting fluids must be carefully used in all the remote corners and granulating recesses, which, if left untouched, will, of course, become the seat of suppuration.

He regards this method of dealing with bone cavities as a decided advance in modern surgery, and he cannot sufficiently recommend it, also, for certain cases of necrotomy in younger persons, where large cavities remain after the operation. There happens, though exceptionally, a certain kind of necrosis, so-called "necrosis disseminata," in which numerous sequestra are scattered all through the bone, lodged in small shallow lacunæ, which are generally connected with each other by narrow canals filled with granulations. [A number of illustrative specimens were here presented.] It requires, not infrequently, great care to trace these canals, and, after thorough removal of all the dead pieces of bone, eventually a thin involucrum may remain. He has, with very satisfactory results, tried to obliterate such cavities by inversion of the soft parts, and has done so on the thigh, on the tibia, and on the radius. On the thigh he has made use of the soft parts on the inner aspect; on the tibia he has formed flaps corresponding to the inner side of the bone. Into cavities at the head of the tibia he has, after the proposition of Neuber, to whom we owe this recent method, inserted tongue-like flaps, having their bases in the region of the tuberosity. Where very thick muscles must be cut across, as in the thigh, he takes care to tie all visible vessels when cutting down to the bone, nor does he trust to the effect of the compressing dressing before removing the constricting bandage. On the contrary, he removes the latter in these cases before applying the dressing.

Sometimes, while the limb is elevated, digital compression of the main artery is kept up, so that only a small quantity of blood is allowed to pass into the distal

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portion at intervals. All vessels of any importance are ligated, and then, after inverting and fixing the flap, a compressing antiseptic dressing is applied. He usually changes the dressing on the second day, especially in summer, The second dressing may remain for one or more weeks, when, as a rule, union of the flaps will practically be obtained, and the open spaces left will show healthy granulating surfaces.

One more word about secondary necrosis in cases of osteomyelitis. There exists one variety of this affection which he might call secondary metastatic necrosis. For example, a boy had extensive necrosis of one tibia involving the ankle-joint. He underwent necrotomy; altogether eighteen sequestra, including two from the lower epiphyses, were removed. The healing process went on somewhat slowly, and the boy, though gaining in flesh, showed a pale, almost chlorotic appearance. He walked for several weeks on crutches, as he had done before the operation, when a subacute affection of his right humerus, at about its upper third, occurred, and after incision of an abscess, which contained very little pus, bare bone was felt. A sequestrum was removed, and the wound gradually healed. About one month later he developed the same trouble in the other os humeri at almost exactly the same point; and here, also, a central sequestrum was found. In another boy, who in the acute stage developed an osteomyelitis of the ilium, at the end of the first year (apparently from the constant use of canes) inflammation of the lower epiphyses of both radii and exfoliation of small sequestra took place. It will be recalled that he presented to the Society about two years ago a boy who had severe acute osteomyelitis in the hip-joint, with necrosis of the head of the femur, and spontaneous epiphyseolysis; about one year after the first attack, when suppuration was still present, after he had been using crutches for a good while, he developed a central bone-abscess in the lower part of the radius, just above the epiphysis, and in the course of that year the same condition existed in the upper third of the humerus, which had been exposed to the pressure of the crutch, and in the diaphysis of the tibia where he had bruised himself.

He emphasized the fact that in none of these cases, during the acute stage, had these regions secondarily affected participated in the diseased process, though in some of the cases multiple acute osteomyelitis was present. He cannot explain this occurrence, except by assuming that a mechanical lesion at certain points in a subject still affected with the poison of osteomyelitis (whether that poison is *staphylococcus aureus*, or another parasite), will favor its deposit at these points, so as to develop there its characteristic lesion. None of these secondary metastatic affections were of a very acute type, but were either subacute or chronic, perhaps in consequence of the diminished susceptibility of the already inoculated constitution.

A last practical word. We often see, in our hospitals, undue force used in applying the constricting elastic bandage for bloodless operations. This is superfluous, and only increases the paralysis of the circulation. He showed here Nicaise's bandage, which, except for the thigh in muscular subjects, will answer every purpose. It is a good plan to try on one's own limbs how little elastic pressure is necessary in order to arrest the circulation. In patients who are under an anæsthetic this force is still less, and he would advise never to apply the bandage before the patient is fully under the influence of ether,

DR. BRIDDON asked if the patient's leg was as much flexed when he first came under Dr. Lange's observation as it is at present.

DR. LANGE replied that it was; the flexion was due to the spontaneous fracture which occurred during childhood as mentioned in the paper. He added that for thirty-five years the patient had walked with his leg in that position.

DR. LANGE then read a paper on

A NEW OPERATION FOR PROLAPSUS ANI.

(See page 206.)

DR. SANDS inferred that the operation described was designed for cases in which a considerable amount of prolapse existed. Several operations had been devised for the cure of ordinary cases of prolapse, among others that of stroking the mucous membrane longitudinally with the cautery. He had known this method to succeed, but he had also seen it fail. It is not safe to produce a very deep eschar, because the peritoneal cavity might be opened. When the prolapse is of moderate extent it can usually be cured by the ordinary operation for hemorrhoids—*i. e.*, seizing the mass with forceps, drawing it down, and ligating it; the contraction which follows will cure the prolapse. This simple procedure, he added, has been very successful in his hands, and he prefers it to more serious operations. However, in aggravated cases, Dr. Lange's operation will doubtless be of benefit.

DR. LANGE remarked that the operation which he had described is not dangerous if antiseptic precautions are observed. The operator should be careful not to pass his sutures into the lumen of the gut. In operating for cancer of the rectum it is not necessary to introduce the finger into the bowel. He had encircled the tumor with an elastic ligature, and then removed the growth; by stitching the gut to the skin before the ligature is removed, loss of blood was avoided.

The patient had been under observation since the operation, four months.

Dr. Lange, in reply to a question from Dr. Briddon, said that he removed the coccyx in order that the action of the levatores ani might be less impeded. In answer to a question from the same gentleman, he added that both the anterior surfaces and the posterior borders of these muscles were brought together, because, otherwise, the ring would not be sufficiently narrowed.

DR. ABBE thought that as none of the rectal tissue was removed, but the lumen was simply narrowed, it seemed as if there was nothing to prevent the gut from eventually distending until it reached its former size.

DR. LANGE called attention to the fact that there were several buried sutures of silkworm gut which might cause suppuration, and subsequent cicatricial contraction of the parts.

DR. ABBE suggested that the tendency to redistention might be obviated by overlapping instead of simply approximating the divided muscles; it would not impair their contractile power. They would not be so likely to slide apart, as they would to pull apart when merely brought in contact. He thought that four months was

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too short a time in which to judge of the success of a plastic operation.

DR. LANGE admitted that the future must decide as to the usefulness of the new operation. He promised to observe his cases carefully and to report the results.

NEPHRECTOMY FOR PYONEPHROSIS.

DR. LANGE exhibited a kidney which he had removed in November, at the German Hospital, from a woman about forty years of age; nephrotomy had been performed several weeks before, a large quantity of extremely offensive pus being removed. The kidney at the time of the first operation was as large as a child's head. Some improvement took place after the nephrotomy, but a diffuse discharge of pus continued, hectic symptoms appeared, and the patient's health failed so much that it was decided to remove the diseased organ. The usual lumbar incision was made, and the distal ends of the eleventh and twelfth ribs were resected in order to gain more room, because at this last operation the speaker had found that the kidney extended high up under the diaphragm.

The operation was not entirely a smooth one; the peritoneum at the upper angle of the wound was torn, in spite of the fact that the retractors were covered with flat sponges. The rent was covered with iodoform gauze during the operation, and was subsequently closed with catgut sutures, so that peritonitis did not follow. Furthermore, through the carelessness of an assistant, who exerted undue traction on the elastic ligature, by means of which preliminary compression of the pedicle was effected, it slipped and a very copious hemorrhage from the large renal vessels occurred. This was controlled by suitable forceps, such as are used in ovariotomy for seizing the sac or pedicle, and several strong silk ligatures were applied. Recovery took place without any disturbance, the wound being left open and packed with iodoform gauze. An intercurrent bronchitis caused some rise of temperature for several weeks.

The urine still contained a little pus and vesical epithelium and some albumin; it was light in color, and there was some suspicion that the remaining kidney was not quite healthy. Still, the patient's condition had been materially improved, and, above all, her pain was relieved.

Dr. Lange remarked that this was the second case in which, from urgent indications, he had removed one kidney while the other was not sound. The other patient was very comfortable, being placed under favorable hygienic conditions in a mild European climate; still, he had occasional attacks of pyelitis. From his experience in these two cases, the speaker was inclined to conclude that when urgent symptoms were present, the extirpation of one kidney was not absolutely contraindicated by a diseased condition of the other.

RENAL CALCULUS REMOVED FROM A PYONEPHROTIC KIDNEY.

DR. LANGE showed a calculus, weighing only fifteen grains less than an ounce, which he had removed from a lady, fifty-three years of age, who suffered from pyonephrosis. The presence of the stone had not been suspected, and only a small portion of it could be felt when the pelvis was opened, the rest being firmly encysted, so that it was necessary to dig it out with the aid of an elevator, sharp spoon, and forceps. As in a similar case in which the speaker had operated, the calculus had a number of irregular projections, which were so firmly imbedded in the calices, that it was by no means easy to dislodge it As soon as the stone had been removed a fresh quantity of pus escaped, which had probably been shut in by the calculus. As the operation had been performed only five days before, it was impossible to say what would be the fate of the patient, although she was then in very good condition.

It was an interesting fact that in the previous history of the case there had been no symptoms pointing to renal calculus, and it was only three weeks before, after a fall, that she began to complain of pain in the affected side and general disturbance. The pyonephrotic tumor was then quite large and had probably existed for a long time previously as a hydronephrosis. A slight pain in the right lumbar region, which the patient had noticed during the past six years, must be attributed to disease of the corresponding kidney. The speaker had observed several cases in which renal calculi produced no pathognomonic symptoms; if the concretion was firmly imbedded in the calices, so as to remain stationary, neither hemorrhage nor great pain would be present.

VESICAL CALCULI AND HYPERTROPHIED MIDDLE LOBE OF THE PROSTATE REMOVED SIMULTANEOUSLY BY SUPRAPUBIC LITHOTOMY.

DR. LANGE also presented these specimens, which he had removed from a man upward of sixty years of age. The patient had suffered very severely for several years, and had been treated by the speaker himself about six years before, without obtaining much relief. Cystotomy had been proposed at that time, but this was declined. On opening the bladder, both calculi were found to be lodged in a deep diverticulum on the right side, near the entrance of the urethra. One of them was long and rounded, resembling one of the irregular processes of the renal calculus previously exhibited, so that it was possible that the stone might have descended from the kidney. Finding that the middle lobe of the prostate was considerably enlarged, he seized it with a vulsellum forceps, encircled it with a galvano-caustic snare, and removed it without much difficulty, the hemorrhage being slight. The wound in the bladder was kept open, in order to allow of effective local treatment. The patient's recovery was retarded by a very severe and protracted bronchitis. At the end of two months the wound was entirely healed, and he was then able to pass a full stream of urine, instead of being obliged to draw it with a catheter, as he had done for years. The urine was nearly normal. The patient's face had entirely lost that characteristic anxious, nervous expression so common in those suffering from painful chronic affections of the bladder.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 14, 1887.

THE PRESIDENT, JAMES C. CAMERON, M.D., IN THE CHAIR.

REMARKABLE BROMIDE ERUPTION.

DR. BLACKADER exhibited a girl, æt. fourteen, who was affected with a remarkable eruption on the legs.

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This consisted of a number of large oval patches five or six inches long and two or three wide on the extensor and inner surfaces of the calves of the legs. The eruption resembled somewhat a tubercular syphilide; it was raised and covered with a thick scab. On lifting the scab a moist surface was exposed, red, raised, and looking like exuberant granulations. The eruption had come out in smaller patches some months before these had coalesced. The girl had been taking bromide for the last two and a half years in doses of from half to one drachm daily.

DR. STEWART said that it was well to combine the bromide with arsenic when they were given for any length of time.

WOUND OF THE INTERNAL JUGULAR VEIN.

DR. JAMES BELL exhibited a patient with the following history: A. B., æt. thirty, fell from a ladder with a chisel in his hand, and when striking the ground the chisel was driven deeply into his neck about one inch behind the angle of the lower jaw on the right side. Immediately there was a great gush of blood from the wound, which was arrested by a companion compressing the wound with a cloth. The hospital ambulance arrived, and on the way to the hospital the house surgeon, finding the bleeding again commencing, placed his finger in the wound. On arriving at the hospital Dr. Bell was sent for, and whilst examining the wound tremendous hemorrhage occurred; compression of the common carotid seemed to arrest the hemorrhage somewhat, so that vessel was ligated; but still the hemorrhage was as profuse as ever when the finger of the assistant was taken out of the wound. In order to find the bleeding point the wound was enlarged, but its depth was so great and the hemorrhage so tremendous, that a very inefficient search could be made. The blood seemed to be coming from a point near the base of the skull, which could be felt with the finger in the wound. It was now determined to plug the wound, which was done with three carbolized sponges well dusted with iodoform; these completely filled the wound. A firmly applied bandage was then put on over dry dressing. By this means the bleeding was completely arrested.

The man, who had lost considerable blood by this time, was very pale and had a small, flabby pulse; he was put into a warm bed with hot bottles, and stimulants were freely administered. Immediately after the accident the man was unable to speak and could not swallow. The first dressing was on the tenth day, when one of the sponges was removed; on the seventeenth day the second sponge was taken away, and the third sponge was not removed for a month. There was not the slightest suppuration throughout the case and the man recovered fairly well. He still had a hoarse voice and some difficulty of swallowing, and also contraction of the sterno-mastoid of the right side with a contracted pupil on the same side.

DR. BELL said that he did not think the ligature of the carotid did any good, and that probably the case was one of wound of the internal jugular vein near the point, where it came from the jugular foramen. He thought that there had been some injury to the right pneumogastric nerve, if not complete division, with, at the same time, wound of the sympathetic trunk of that side, as evidenced by the contracted pupil, and slight drooping of the upper eyelid.

DUPUYTREN'S CONTRACTION.

DR. R. J. B. HOWARD read a short paper on a case of Dupuytren's contraction of the little finger, in which he had operated according to the method of Mr. Adams, of London. The patient was a girl, aged twenty-two, who had always been healthy; no history of gout or rheumatism. The contraction was very marked. After dividing the bands subcutaneously at the two ends the lateral strands were then cut, and the finger was put in its natural position and held there with a splint and bandage. The wounds made by the tenotome healed well, but a slough formed in the dorsal surface of the little finger, and when this came away an ulcer remained, which was difficult to heal. He could not account for the presence of the slough, for the nerves supplying the skin of that part were not cut, and at no time was the pressure great. The result in consequence of the slough was not as perfect as it otherwise might have been, but a fairly straight and very useful finger was obtained. Dr. Howard also showed a beautiful dissection of a case of Dupuytren's contraction obtained from the anatomical rooms of McGill University.

PUERPERAL ECLAMPSIA.

DR. A. L. SMITH read a short paper on the above subject, and reported several cases. He strongly advocated the induction of premature labor at the seventh month in *all* cases of pregnancy where the amount of albumen was large and the urea deficient. In this way he thought eclampsia could be prevented, and fewer mothers and children would be sacrificed. Dr. Smith was of the opinion that the albuminuria of pregnancy was due entirely to pressure, and the proper treatment was to remove the cause.

DR. ARMSTRONG said he had seen many cases of albuminuria during pregnancy without convulsions occurring, and that when these came on it was time enough to induce premature labor.

DR. GURD stated that in some of the most severe cases of convulsions there was only a slight amount of albumen in the urine, whilst the patient might have a large amount of albumen and not have the slightest tendency to convulsions. He was altogether opposed to the induction of premature labor in cases of albuminuria. Dr. Gurd had found treatment of benefit. When there was albumen, with headache and œdema, he was in the habit of ordering the compound liquorice powder and cream of tartar, and also he put the patient on a milk diet.

DR. TRENHOLME thought that the condition of the circulatory system is most important in these cases. If the heart is diseased, the case is of much greater gravity.

DR. JAMES CAMERON disagreed entirely with Dr. Smith as to the necessity for inducing premature labor in albuminuria, and said that if this treatment were advised very serious results might follow.

CONGENITAL RETRO-PERITONEAL CYST.

DR. WILLIAM GARDNER showed some fluid removed from a retro-peritoneal cyst of the left loin. The patient, a female, æt. twenty-eight, unmarried, had an enlarge-

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ment of the abdomen since childhood. In recent years the swelling had been growing larger, and she had been suspected of being pregnant. A week before she was seen by Dr. Gardner, she suddenly took ill with rigors, high fever, perspirations, vomiting, and severe pain and tenderness in the left loin. On examination a rounded, smooth tumor was found to occupy the left loin, enlarging the abdomen considerably on that side and extending beyond the median line to the left; it reached upward as high as the ribs and down to the brim of the pelvis. As the symptoms were urgent, it was decided to explore by abdominal section. A two inch incision was made in the median line below the umbilicus; on opening the cavity the cyst was found to be behind the peritoneum and intestines, the colon lay in front and in such a position as to render the management of the case too difficult; so the median incision was closed, and another made over the most prominent part of the tumor, about three inches to the left of the umbilicus. On reaching the tumor it was tapped, and seventy ounces of a dark, brown, turbid fluid, containing numerous crystals of cholesterine, removed. The opening was enlarged and its edges stitched to the edges of the abdominal wound, and a glass drainage tube left in. From the time of the operation the girl ceased to have pain, fever, or any other bad symptom; the discharge was slight and the cavity shrank rapidly, and when the patient was discharged, twenty-six days after the operation, the cavity was almost closed.

On examination the evacuated fluid was found to contain a quantity of pus. Dr. Gardner remarked that the cyst was evidently an old one, possibly congenital, growing near the kidney, and which had suddenly taken on inflammatory action. He also said that the cyst could have been evacuated through the loin posteriorly, but that he felt more at home in opening the abdominal cavity than the loin, and the result seemed to justify the course pursued.

CYSTO-SARCOMATOUS TUMOR OF OVARIES AND UTERUS.

DR. GARDNER exhibited a sarcomatous tumor of uterus and ovaries, removed from a married woman, æt. twenty-one, the mother of a child one and a half years old. The tumor was first noticed in October of last year and had grown rapidly, causing pain, emaciation, and interference with the functions of both bladder and bowels. The whole vaginal roof was a hard mass, and the os only made out with great difficulty. The whole floor of the pelvis was merged into one mass, and the operation was completed by encircling the cervix with Koeberle's clamp, and afterward amputating it and securing it with pins externally at the lower angle of the wound. The hemorrhage was free. The cavity was well washed out with warm water and drained. Everything went well until the sixth day, when the temperature rose and continued high with fluctuations for six days. She was now (19th day) quite convalescent. The wire was cut and the clamp removed on the third day.

NEWS ITEMS.

PARIS.

(From our Special Correspondent.)

TERPINE IN CASES OF NEURALGIA.—DR. DUCROUX, in a paper recently read before the Société Médico-pratique, communicated notes of cases showing the good effects of terpine in cases of neuralgia.

The first case was that of a woman forty-seven years of age. Two years ago she was attacked with neuralgia consequent on occupying a damp house. A treatment of sulphate of quinine procured relief, but this was only temporary. Aconitine was subsequently administered, but the relief obtained was likewise temporary. On February 15, 1886, she was suffering from constant neuralgia on the right side of the lower jaw, in the right cheek and temple. There was also pain in the supraorbital notch, the mental foramen, and in the occiput. The patient complained of a constant sensation of heaviness in the head, and of cold in the right side of the head. 0.60 centigramme of terpine, in the form of three pills, was administered between meals during three days. On February 19th considerable relief was obtained. The pains and the sensation of cold disappeared, that of heaviness of the head, which had persisted for two years, also disappeared; the pains returned in a few days, terpine was again administered in the same manner as on February 25th. The pains disappeared, then returned, but in a milder form, without any heaviness of the head. Terpine was again administered on March 8th. Neuralgia again appeared; doses of 0.80 centigramme, in the form of four pills, were administered on March 10th, for three days. During the month of April these doses were repeated at intervals. At the end of April the occiput was sensitive, but all other pains had ceased. At the beginning of May and June terpine was again administered, the pains having reappeared. On June 15th the patient was able to go out without extra covering on the head. Dr. Ducroux is of opinion that the patient may be again obliged to have recourse to terpine, as the neuralgia reappears, though in a milder form each time. The therapeutic action of the terpine appears to fail after a few days. In cases of obstinate neuralgia it might be advisable to administer terpine every week during three years.

The second case was that of a married woman, thirty-five years old. At the age of twenty-two she had intermittent fever. From the age of thirteen or fourteen she had suffered from headache, from time to time. Menstruation ceased six years ago. A week ago she was attacked with pain in the right side of the head, differing from her habitual headache. This pain, which gradually increased, extended in front around the ear and over the temple and cheek, and behind over the mastoid region. There was pain in the external auditory channels. The pains were accompanied by a humming in the ears; 0.60 centigramme of terpine was administered in three pills, to be taken between meals. On April 29th the pains had disappeared, but the humming in the ears continued. 0.50 centigramme of sulphate of quinine was administered during three days. This remained without effect. A few days previous to May 17th the humming in the ears diminished, and took a different form. The sound in the ears was no longer that of humming, but of running water. The patient could neither hear herself nor others speak. 0.60 centigramme of terpine was administered during three days. The sounds in the ear diminished, and completely disappeared two or three days after the last pill was administered. Dr. Ducroux believes that the

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disappearance of the pains was due to the use of terpine, and that the terpine exercised a certain influence upon the sounds in the ear.

The third case was that of a man, twenty-three years old. Fifteen years ago he was attacked with bronchitis, accompanied by hæmoptysis. In May, 1885, he was attacked with severe pain above the right eye, in the supraorbital notch and the occiput. The treatment administered was as follows: A blister applied to the temple and dressed with 1 centigramme of morphine; 0.60 centigramme of terpine in three pills, administered during three days. The first morphine dressing did not cause the pain to diminish; but the second, applied the following evening, caused a diminution of pain. The patient had then taken three terpine pills. As the improvement continued, only eight pills were administered in three days, after the second day. The neuralgia was completely cured. Dr. Ducroux attributes this cure to terpine, as the morphine dressing remained without effect.

PROFESSOR RANVIER.—This distinguished histologist and pathologist has been elected a member of the French Academy of Sciences.

SUITS FOR DAMAGES FOR DEFECTIVE DRAINAGE.—A series of suits for damages was recently decided in the fourth session of the Superior Civil Court, Boston, before Judge Pitman. The cases are of great interest to physicians, as well as to landlords and tenants. The suits were brought to recover damages for sickness and costs of medical attendance, caused by alleged defective drainage. The plaintiff, Charles A. Cutter, leased a house of the defendant at No. 60 Allen Street, Boston, with the representation that the drainage was in good condition. Mr. Cutter set forth that, owing to the bad drainage, he and other members of his family had diphtheria, one child dying thereby. The defendant denied his liability, and, in defence, claimed that the drainage was good. The suits were in the names of five members of the Cutter family, and ended in substantial verdicts for the plaintiffs, the amounts being, respectively, $1600, $700, $300, and $250, each, in the last two cases, making a total verdict of $3100.—*Boston Medical and Surgical Journal*, February 10, 1887.

A PRIZE FOR THE APPLICATION OF ELECTRICITY.—A prize of fifty thousand francs is offered by the French Minister of Education for a discovery rendering electricity economically applicable in the shape of heat, light, chemical action, mechanical power, transmission of messages, or treatment of disease. A committee, with M. Bertrand, of the Academy of Science, as its chairman, will adjudicate.

PROFESSORSHIP OF HYGIENE IN BRESLAU.—A Professorship of Hygiene has recently been created at Breslau, to which Professor Flügge, of Göttingen, has been appointed, where he is Director of the Institute of Chemistry and Hygiene.

A NEW MEDICAL PERIODICAL.—A new medical periodical will appear on March 1st. It will be devoted to children's diseases and allied subjects, and will be called the *Centralblatt für Kinderheilkunde*. It will be published in Vienna, and edited by Dr. R. W. Raudnitz. The English editor is Dr. H. Ashby, of Manchester, to whom all papers for abstraction may be sent.

HOW LONG SHOULD A NERVOUS PATIENT BE TREATED?—The question of how long treatment should be continued in a neurotic case when no evident benefit is produced, has recently been raised in a Hamburg law court. A medical man, having as a patient a merchant suffering from "nervousness," treated him by galvanism. Altogether he galvanized him 445 times, but the nervousness did not disappear. Then came the matter of fees. The sum claimed was £111 5*s*. The merchant disputed this on the ground that the treatment ought not to have been continued so long, as it was not producing any benefit. The court referred the matter to the medical board, which gave as its opinion that the doctor ought to have asked the patient, after some fifty sittings, whether he would like to continue them, as it was doubtful whether the treatment was doing any good. The court, however declined to accept this view, holding that it was for the patient to say when he had tried the treatment as long as he was disposed to pay for, and so gave judgment for the full amount claimed.

THE NUMBER OF MEDICAL INSTRUCTORS AND STUDENTS IN GERMANY.—The Medical Faculty of Germany numbers 581 members, who are located as follows: In Berlin, 103; Leipzig and Munich, each 44; Breslau, 38; Bonn and Strasbourg, 30, and the remainder in smaller cities and towns. Vienna numbers a larger Faculty than Berlin, 122 instructors; it also excels the Prussian capital in its number of students, which, during the summer term of 1886, was 2289, that of Berlin being 1142. The proportionate number of students to each instructor is 11 in Berlin, and 18.5 in Vienna. The entire number of medical students in Germany during the summer term of 1885 was 8261, 14.2 students to each instructor. Berlin numbered 1142 of these; Munich, 1123; Würzburg, 796; Leipzig, 679; Freiberg, 544—*Deutsche Wochenschrift*, January 6, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 8 TO FEBRUARY 14, 1887.

MCCREERY, GEORGE, *Captain and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply for one month's extension.—*S. O. 35, A. G. O.*, February 11, 1887.

MORRIS, EDWARD R., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended twenty days.—*S. O. 35, A. G. O.*, February 11, 1887.

HARRIS, H. S. T., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Clark, Texas, to Fort Ringgold, Texas.—*S. O. 16, Department of Texas*, January 31, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MARCH 5, 1887. NO. 10.

ORIGINAL ARTICLES.

THE DEATH-RATE OF LYING-IN HOSPITALS IN THE UNITED STATES.[1]

BY BARTON COOKE HIRST, M.D.,

OBSTETRICIAN TO THE MATERNITY HOSPITAL OF PHILADELPHIA, AND OBSTETRICAL REGISTRAR TO THE PHILADELPHIA HOSPITAL.

STATISTICS showing the death-rate in general hospitals, while interesting and instructive in themselves, are of little value for purposes of comparison, for the class of cases treated in one institution can differ so much from that in another as to make any comparison between the two impossible. This is true to a much less degree of hospitals devoted to the reception of women about to be confined; here the conditions are constant, the affection to be treated is always the same.

The collection and comparative analysis of the statistics of such institutions has been brought to a condition of great perfection in Europe, especially in Germany, with the result of exciting a spirit of emulation among the authorities of the obstetrical hospitals as to which one of them shall possess the best record, and the wide publication of these reports has had, moreover, the very valuable effect of making it impossible that a hospital should have a conspicuously bad record without giving some explanation for it. Such a collection of statistics in regard to the lying-in hospitals of this country does not exist; to supply this deficiency, therefore, the writer has devoted considerable time and attention, with the result of obtaining the records of 19,902 confinements during the six years, 1880–1885, divided among 34 hospitals.

Of the importance of possessing such knowledge it is almost unnecessary to speak. By placing the statistics in a tabulated form, the records of those hospitals which are unusually good may be compared with those that are conspicuously bad, and if the divergence in results between them is great some explanation for this fact must be sought. Then, again, the total result, the average mortality, may be compared with the average hospital mortality in other countries, and, most important of all, it will be necessary to contrast the mortality of obstetrics in hospital practice with that of general practice, as on the result of this comparison should depend the very existence of these institutions; for it must be conceded that no hospital, whether supported by the community or by private charity, has the right to subject its inmates to a danger of death much greater than if they had remained in their own homes, no matter how squalid they might be.

[1] Read before the Philadelphia Obstetrical Society, March 3, 1887.

The study of the following statistical table, therefore, will be divided under three heads: First, a study of the table itself, with a comparison of the individual records, and an explanation, if possible, of their wide divergence; second, a comparison of the average hospital mortality in this country with that of some other countries; and, third, a study of the relation that hospital mortality bears to the mortality of general practice.

Institution.	Total confinements, 1880–85.	Per cent. of deaths.	Per cent. of deaths from sepsis.
Baltimore, Maternity	694	2.59	0.86
Boston, Lying-in Hospital	1599	3.81	3.10
New England, Moral Reform Society	191	0.00	0.00
Hospital for Women and Children	552	0.72	0.36
Brooklyn, St. Mary's Hospital	298	2.01	0.33
Maternity	552	1.63	1.44
King's County Hospital	834	2.63	1.19
Chicago, Women's and Children's Hospital	515	1.35	0.58
Women's Refuge	60	6.66	3.33
Cincinnati, St. Joseph's Lying-in Hospital	275	0.72	0.72
Cleveland, The Retreat	192	1.04	0.52
Detroit, Women's Hospital and Foundling's Home	295	4.74	3.05
Hartford Hospital	139	2.87	2.87
Indianapolis City Hospital	323	5.26	4.33
Louisville City Hospital	428	2.33	0.70
Minneapolis, Northwestern Hospital	45[1]	4.44	2.22
Newark City Hospital	77[2]	3.89	2.59
New Orleans, Charity Hospital	808	5.32	2.97
New York, Blackwell's Island	2842	2.92	1.82
Nursery and Child's Hospital	1239	2.90	1.53
Infant Asylum	1057	1.79	0.85
Emigrant's Hospital, Ward's Island	871[3]	3.55	2.64
Foundling Asylum	847[4]	1.41	
Infirmary for Women and Children	613	0.48	0.16
Asylum for Lying-in Women	464	1.29	0.32
Philadelphia, Almshouse Hospital	1099[4]	4.34	
Maternity	503	1.39	0.79
Women's College Hospital	458	2.83	1.52
Lying-in Charity	174	0.57	0.57
Pittsburg, City Hospital (Almshouse)	206[5]	3.53	2.65
Rochester City Hospital	139	0.71	0.71
Monroe Co. Hospital	93	1.07	1.07
St. Louis, Lying-in Hospital	623	1.92	1.28
Washington, Columbia Hospital	797	1.25	0.50
Total number of women delivered	19,902		
" " " " died	516		

It cannot be claimed that the preceding list is a complete one of all the lying-in hospitals in this country; there were some that ignored repeated requests for their statistics, there were others that refused to give them, and still others whose records when obtained were found valueless for the purposes of this paper. In addition to these hospitals una-

[1] 1882–85.
[2] 1882–85.
[3] Records prior to 1881 unreliable.
[4] Causes of death not given.
[5] Only reckoned for last three years.

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voidably omitted from the list there may be others of whose existence the writer is unfortunately ignorant. It is improbable, however, that the addition of any records that have been omitted would seriously affect the final result. The number of cases dealt with is so large as to insure the approximate accuracy of the conclusions arrived at.

A death-rate of 2.59 per cent. of the women confined. It must be surprising to one who has not devoted much attention to the subject to find that, of the women of this country who perform the perfectly physiological function of childbearing in hospitals designed for their reception at such a time, 1 out of every 38 must die. One looks involuntarily to the table to learn if this represents the true state of affairs in all lying-in hospitals. If they all have a death-rate closely approximating this, then the only conclusion possible is that such a mortality is inseparable from childbirth in hospitals. A mere glance, however, suffices to show that the onus of producing a mortality as high as 2.59 per cent. of the women confined, rests not upon all, but conspicuously upon a few. Ten hospitals may be selected whose average mortality is 4.48 per cent. of the women confined; or, of every 22 women who are compelled to seek shelter in these institutions, 1 will die. On the other hand, ten hospitals may be selected, of which the average mortality is only 0.87 per cent., in which 115 women must be delivered before 1 dies. Can there be a satisfactory explanation for a divergence in results so wide as this?

It has often been asserted that unmarried primiparæ form the most unfavorable class of cases possible; that, in addition to the primiparity which is acknowledged everywhere as an unfavorable factor in obstetrics, the shame connected with the illegitimate birth exerts an almost murderous influence in raising the mortality among these women.[1]

It might, therefore, be expected that only hospitals devoted to this class of cases would be found among those contributing to raise the general mortality, while in those where the mortality was so low there would be found a large proportion of multiparæ. Again, a reference to the table of statistics will show the truth or the fallacy of this surmise. We shall find that the record of the Maternity Hospital of Philadelphia, an institution devoted entirely to the care of unmarried primiparæ, will show a death-rate of 1.39 per cent., while the Boston Lying-in Hospital, in which more than half the patients are married women and presumably multiparæ, although the annual reports give no information on this point, has a mortality of 3.81 per cent.

It may also be claimed that a high mortality is inseparable from a lying-in hospital that deals with a large number of women yearly; but if this is the case, it must be due to over-crowding, which can occur just as well in a small as in a large hospital, but is unjustifiable in either. And, in fact, if we look again to the table, we shall find the highest mortality in a hospital which reports only 60 cases for the six years. It is useless to look further for a satisfactory explanation for the high death-rate that prevails in many of our lying-in hospitals, for no good reason can be found, and the conviction is forced upon us that such excessive mortality is utterly unjustifiable. That this is true and that, even in institutions whose previous record had been simply shocking, an earnest effort toward improvement will accomplish much, is shown by the following table of the death-rate by years in two large hospitals.

[1] Tait: Hospital Mortality.

DEATH-RATE PER CENT. OF WOMEN CONFINED.

Institution.	1880.	1881.	1882.	1883.	1884.	1885.
Boston, Lying-in Hospital . . .	5.58	3.18	6.00	5.88	1.94	1.31
Philadelphia, Blockley Almshouse .	6.01	4.08	3.92	7.31	3.19	1.52

The sudden decrease in the mortality of the Boston Lying-in Hospital, in 1884, was the result of a letter calling the attention of the managers to the really murderous death-rate of former years in that institution. The improvement begun in 1885 in the Philadelphia Almshouse still continues, the death-rate for the past year having been only 0.87 per cent. It is also gratifying to note the gradual improvement for the whole country shown in the following table:

Years.	Women confined.	Women died.	Death-rate per ct.
1880	2800	85	3.03
1881	3320	78	2.34
1882	3272	90	2.74
1883	3207	121	3.77
1884	3595	67	1.86
1885	3704	75	2.02

This improvement is not steady, but, as may be seen, the death-rate for the last two years is lower than for any two years previous.

To conclude the study and analysis of the table of statistics, it would be well to fix a maximum mortality for lying-in hospitals, beyond which none should go without giving a satisfactory explanation. We have seen that there are 10 hospitals on the list with an average mortality of only 0.87 per cent., and among these hospitals are some which deal with the worst class of cases imaginable. It would seem, therefore, reasonable and liberal to fix this limit at 1.5 per cent. of the women confined, and I am happy to say that in future the State Board of Charities in Pennsylvania will probably demand annual reports from the lying-in hospitals throughout the State, in order that if any one of them shows an excessive death-rate, that fact may be pointed out to the managers of the hospital with a request for an effort to secure better results.

Now we may pass to the second division of the subject and compare the records of lying-in hospitals in this country with those of some hospitals in the most highly civilized states of Europe.

It would be impossible, were it necessary or desir-

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able, to present a complete list of the lying-in hospitals, with their statistics, of the foremost countries of Europe. The brief little table that follows, however, will supply us with sufficient material to enable us to contrast the mortality of child-birth in hospitals here with the hospital mortality of some other countries.

	Period.	Delivered	Death-rate per cent.
Germany, 47 hospitals[1] . .	1874-83	104,328	1.37
England, 10 hospitals[2] . .	1870-75	18,369	1.05
Vienna, I. Geburts. u. Gyn. klinik des Allgemein. krankenhaus.[3]	1880-85	15,070	0.70
Vienna, II. Geburts. u. Gyn. klinik des Algemein. krankenhaus[4]	1882-85	8,355	0.52
Paris, Maternité[5]	1876-82	1,223	0.49

We shall have little cause for congratulation if we compare the records of our lying-in hospitals with those of the 47 German hospitals collected and published by Professor Dohrn. These hospitals, although dealing with an immense number of women and making use of them, as a rule, for purposes of instruction, present a record twice as good as our own. The English hospitals, whose records are given by Tait, even ten years ago presented a very much better showing than ours do to-day; and when we see the really astonishing results achieved in the obstetrical clinic of the General Hospital in Vienna, where under one roof more women are delivered in a year than in all the hospitals of the United States, we have still greater reason for dissatisfaction with what we have done in this direction, especially as there can be no good reason why we should occupy such a disadvantageous position in this international comparison, for with our greater wealth and the superior physical and mental condition of our populace, as compared with the peasantry of Europe, we should in every lying-in hospital strive, at least, to equal the results obtained by Tarnier in 1884, when, in the Maternite, he had 1000 successive accouchements with but a single death.[6]

Finally, in order to determine the relation that hospital mortality bears to the mortality of general obstetrical practice, we are confronted by the necessity of fixing a normal death-rate after childbirth, of knowing how many women die during or after labor in a large city; for to make the comparison with hospital results a just one, we must have in both cases the same environment.

The almost insuperable difficulty of determining the exact mortality of obstetrical practice in a large community will be at once apparent. If we consult the city's official record of deaths, we may be sure that many of those which are attributed to pyæmia and septicæmia really occurred during the puerperium, and that often a death directly connected with childbirth will, from ignorance, carelessness or design of the attendant, be ascribed to some other cause. The experience of the Registrar-General[1] of England in 1882 will be interesting in this connection. In that year there were reported, without further specification, 413 deaths from septicæmia and pyæmia, and 430 deaths from peritonitis, of women of childbearing age. A careful inquiry developed the fact that of the first group (413 deaths) 123 were due to childbirth, and that of the second group (430 deaths) 179 followed childbirth; in both groups of cases more than half the inquiries remained unanswered. This addition to the number of deaths after childbirth raised the mortality among the women who had been delivered in 1882 by 0.1 per cent., making the death-rate for the year throughout England 0.5 per cent. We may realize, therefore, how little reliance is to be placed upon official records if we would learn the true death-rate in obstetrical practice in a large city, where many of the women in labor fall into the hands of ignorant midwives or of physicians not much more skilful. I may as well at once assert my belief that this death-rate will closely approximate, if, indeed, it does not exceed, 1 per cent. of the women confined; but as there will be many, from the days of Le Fort to the present time, who will dispute the truth of this statement, it becomes necessary to support it by proofs that, to me at least, are convincing.

If we are unable to look for these proofs in our own official records, we have, nevertheless, several methods[2] at our command by which we may obtain the information desired. We might, as Tarnier once did, ascertain the number of women of childbearing age who had died in a certain district, and if by the record of births it was shown that any one of these women had given birth to a child within a month of her death, the death might be ascribed to childbirth. This method, if the record of births and deaths be reliable, can be depended upon to give a fairly accurate idea of the number of deaths from all causes after childbirth. We might, on the other hand, consult the records of other cities or countries which we have reason to believe more accurate than our own, or we may learn the results of the private practice of obstetricians who have attended a large number of women and have kept a careful record of their cases. Again, we might adopt McClintock's[3] plan in order to obtain the number of deaths from all causes after childbirth, including those from non-puerperal causes, as such deaths must sometimes contribute to raise the mortality of hospitals. Collecting the results of the house practice of nine reliable physicians in 16,774 cases, McClintock found that more than a quarter of the deaths after childbirth were due to non-puerperal causes. If, therefore, 25 per cent. is added to the number of deaths appearing in a city's

[1] Dohrn: Zeitschr. f. Geburts. u. Gyn., B. xii. H. 1.
[2] Lawson Tait: Hospital Mortality.
[3] Carl Braun: Beilage zu Nr. 35, der Wiener Mediz. Woch., 1886.
[4] Ehrendorfer: Archiv f. Gyn., B. xxvii. H. 2.
[5] Tarnier: Bulletin et Mémoires de la Société Médicale des Hôpitaux de Paris, 1882.
[6] Annales de Gynécologie, 1884.

[1] Annual Report, 1883.
[2] Garrigues: Transact. of the American Gyn. Soc., 1877.
[3] Dublin Quarterly Journal, 1869.

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records as due to childbirth, a fair idea of the total mortality among puerperal women will be obtained.

Employing Tarnier's method, in Glasgow and Edinburgh, Duncan[1] found the mortality among women after childbirth to be 0.93 per cent. Applying McClintock's method to the records of Paris, St. Petersburg, and Dublin, he found the mortality in those cities to be respectively 0.83, 0.89 and 1.16 per cent. of women confined. By a careful analysis of the records preserved in the Health Department of New York City, Lusk[2] found that 1.17 per cent. of the women confined in New York, during the years 1868–75, died as a consequence of childbirth. In the Duchy of Baden there were delivered, in the year 1884, 54,996 women.[3] Of these, 0.4 per cent. died of puerperal fever; 0.7 per cent. died after the performance of the different obstetrical operations, from accidents during labor, or from eclampsia; but the cause of death in some of these cases was undoubtedly septic poisoning, and they would consequently be included in the first percentage, so that the death-rate cannot be estimated by adding these two percentages together, which would make 1.1 per cent., but the death-rate is probably not less than 0.9 per cent. of the women confined, and this in an agricultural district containing no very large towns and with a comparatively healthy and prosperous population.

A. H. McClintock,[4] speaking before the British Medical Society, gave the results achieved in private obstetrical practice by nine reputable physicians, men of no mean skill and intelligence, as the following list will show:

Campbell (Paris),	of 1500	cases	lost	13
Simpson	" 180	"	"	4
Matthews Duncan,	" 736	"	"	8
McClintock,	" 1000	"	"	12
Thos. Hamilton,	" 402	"	"	7
Chas. Egan,	" 400	"	"	8
W. T. Greene,	" 1500	"	"	12
George Jones,	" 2000	"	"	16
Uvedale West,	" 3100	"	"	23
	10,818			103

A death-rate of 0.95 per cent.

These figures certainly seem to justify the assertion that, at least, 1 per cent. of the women delivered in a large city will die. If one hesitates to admit that such is the mortality associated with what is usually regarded as a simple physiological process, what shall be said of the death-rate attending confinement in the lying-in hospitals of this country, which is more than twice as great as that of general practice, and in individual instances four and fivefold greater?

The title, charitable, can be conferred upon many of these institutions only by the followers of Malthus; but as their existence has become a necessity in all populous communities, a necessity which will become more pressing as the population of this country becomes more densely concentrated at certain points and the poverty of the lower classes increases, surely common humanity demands that they be controlled by State or municipal supervision, in order that they may fulfil the ends for which they were intended—that they may truly afford aid to a woman at a time when it is most urgently needed—and that they may not, as many of them do to-day, make childbearing as dangerous to the woman as an attack of typhoid fever or the performance of laparotomy.

[1] Matthews Duncan: Mortality of Childbed and Maternity Hospitals. Edin., 1871.
[2] The Science and Art of Midwifery, p. 645. New York, 1886.
[3] Aerztliche Mittheilungen aus Baden, Nr. 5, 1886.
[4] British Medical Journal, Aug. 10, 1878.

CASE OF DERMATITIS HERPETIFORMIS OF THE PUSTULAR VARIETY.

BY LOUIS A. DUHRING, M.D.,
PROFESSOR OF SKIN DISEASES IN THE UNIVERSITY OF PENNSYLVANIA.

IN reporting the notes of a case of a rare disease no apology therefor need be made, for the reason that any information on the subject must prove valuable. The disease under consideration being of infrequent occurrence, and, moreover, constituting a new field of observation, concerning which there seems to be some diversity of opinion among dermatologists, is for these and other reasons worthy of close investigation. With our present knowledge every case encountered is entitled to a place on record, with the hope that as the published data accumulate we shall better comprehend the process.

The following case was under my observation at intervals during a period of five years. At the time the disease seemed to me incomprehensible on account of the peculiar lesions, their behavior and course, which were altogether different from those of any affection with which I was familiar. Classification of the disease was beset with difficulties, as the original notes testify, and the case was regarded as an anomalous one—as representing, perhaps, an undescribed disease. The several provisional diagnoses (of eczema? of ecthyma? of tinea circinata?) made from time to time show the resemblance of the lesions to those of well-known affections, and give an idea of the multiformity displayed. The case, moreover, is interesting as exhibiting a phase of this peculiar disease that has not been brought out in any of the cases that I have previously reported. These features will be referred to later.

The patient came under notice in 1874, and the following history is an abstract of the notes taken at that date. Daniel Welsh, fifty years of age, Irish, and a hostler by occupation. He had previously been subject to "prickly heat" during the summer about the trunk, and was so affected year before last, this attack having been followed by a much more serious disease of the skin similar to that, he states, with which he now suffers. He describes the eruption he had at that date as being pustular and vesicular, with intense itching and burning. The itching was intolerable, and the disease continued for three months. Crusting followed the formation of the pustules, which remained for some time, the process eventually passing off with scaling. He recovered in the autumn, and remained well six months, when the present eruption appeared. It continued throughout the summer, becoming better toward autumn, but it never left him entirely.

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About a month ago it began to grow worse. It is now confined to the trunk, shoulders, and buttocks, and is particularly well defined upon the abdomen and sides of the thorax. The lesions are disseminated, but possess certain herpetic features, and consist of numerous minute, small and large pustules, with yellowish contents, in all stages of development. They vary much in size, some being no larger than pin-points and pin-heads, while others have attained the size of peas and beans. The latter are not acuminated, but are flat and spread out, although considerably raised above the surrounding healthy skin. In outline the larger ones, as a rule, are oblong or irregular, and angular, and have an herpetic, "puckered" appearance. The small recent pustules are not attended with any redness of skin, having no inflamed base or areola; but the larger and older ones are surrounded with a deep red areola of considerable size. There are no vesicles. [A week's observation proved that this eruption began as a well-defined pustule, and continued as such until a crust formed, which became detached in four or five days, leaving a pigmented base.] In addition to the pustules there is considerable pigmentation, of a reddish, dirty-yellowish, brownish hue, which is present here and there over the surface in a marked degree, and is a conspicuous symptom, being much greater and more persistent than with other similar inflammatory processes.

The disease at present is almost without itching, burning, or other annoying symptoms. The eruption, he states, comes out in crops, one scarcely disappearing before another makes its appearance, and in this manner the process is kept up from week to week and month to month.

Such was the condition when admitted to the Dispensary for Skin Diseases, April 28, 1874. He was placed upon external and internal treatment, the disease being then regarded as pustular eczema. During the following month under the use of iron and arsenic and varied external remedies the cutaneous lesions increased. A few weeks later minute pustules began to appear in a grouped, circinate, herpetic form, as in typical tinea circinata, the appearances resembling an exaggerated phase of this latter disease, so much so that it was thought it might possibly be due to a vegetable parasite, but the microscopic examination revealed nothing of this nature.

Itching and heat now began greatly to annoy the patient, and within a week some of the circinate patches increased in size until they became two inches in diameter. The pustules were minute and small, and hence the picture did not suggest herpes iris. Two weeks later the attack subsided and the lesions rapidly disappeared, but only to reappear immediately as a new crop, as before, in the form of numerous pin-point and pin-head sized pustules. The following week another crop, numbering thousands of lesions, invaded the trunk, accompanied with burning but no itching. This attack increased in extent and severity, but the lesions remained small, a few only being as large as a pea. Scales and thin crusts formed in large patches, and scaling and exfoliation set in. The skin became intensely itchy and hot, and he was unable to sleep, and was depressed and discouraged.

The patient now passed from under observation, having experienced no relief from the varied treatment which he had undergone. Five years afterward he again presented himself to me, still a sufferer with the same disease. An ointment containing sublimed sulphur one ounce, lard two ounces, and oil of walnuts two drachms, was now used, and with positive relief to the itching and burning, and with the remarkable result of causing the lesions rapidly to disappear. The inunctions were made with friction, as in the treatment of scabies. I subsequently saw him in several attacks, in one of which the pustules were herpetic and grouped, as previously, in a crescentic or more or less annular form, new lesions, moreover, showing themselves on the periphery of the patches, accompanied with much itching. The ointment referred to was again (and on later occasions) employed with the same admirable result, the patient stating that during the many years of his suffering this was the first and only remedy that had in any degree benefited him. He spoke of the relief to the subjective symptoms as being instantaneous, and looked forward to a speedy permanent cure. Whether or not this occurred I am unable to say, as shortly afterward he ceased attending the clinic.

The interesting points of the case are, first, that during the period I had the patient under observation the lesions remained pustular, being at times minute (not larger than pin-points and pin-heads), and on other occasions larger,—the size of peas and beans. At all times, even when the eruption might be regarded as being disseminated, they possessed herpetic features, being either (when of large size) seated upon an angry-looking, drawn-up, puckered base, or (when small) grouped in close proximity, sometimes in an annular form, as in tinea circinata and herpes iris. As characteristic of the disease, may be mentioned the disposition of the eruption to appear in crops; the pigmentation of the affected skin; the obstinacy of the process to treatment; the tendency to relapse; and the long duration of the disease as a whole. Finally, the subjective symptoms were peculiar, being at one time marked and at another time almost absent. The variations on this point were remarkable if the statements of the patient are to be relied on. The fact, however, of the lesions being pustular would account for the comparative freedom from itching, this symptom, as is well known, rarely accompanying pustular lesions of any kind.

ACCIDENTS ACCOMPANYING THE USE OF THE A.-C.-E. MIXTURE.

BY W. H. SHARP, M.D.,
OF VOLCANO, W. VA.

IN THE MEDICAL NEWS of January 8th, Dr. John H. Packard relates an accident following the use of the A.-C.-E. mixture. He speaks of the few recorded cases of fatal or alarming results from its use. It has happened to the writer to see alarming symptoms accompanying its administration, which I will briefly relate from memory.

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In the spring of 1865, while stationed at the U. S. A. "Summit" House General Hospital, Philadelphia, the staff were performing an amputation of the leg. At the suggestion of Surgeon Joseph Taylor, in charge, the A.-C.-E. mixture was used. The anæsthetic was administered by Surgeon A. A. Leavitt, Executive Officer of the Hospital. During the operation, the patient's respiration failed. The condition became so alarming that the operation was temporarily discontinued, and all present turned their attention to restoring the patient. Artificial respiration, cutaneous excitation, and inhalation of fumes of ammonia, fortunately, were successful. The operation was then finished, with the patient only partially unconscious. For many years I had not used this mixture, using either ether alone, or the mixture of ether two parts, chloroform one part, by weight; or, rarely, chloroform alone.

During the past two years, I have on several occasions used the A.-C.-E. mixture with gratifying results, being led to use it again by the favorable reports given by various authorities. During the summer of 1886 I was removing cancerous mammary and axillary glands—assisted by Drs. Martin and Chesney of Cairo, West Virginia. To Dr. Chesney was intrusted the administration of the anæsthetic, which was the A.-C.-E. mixture. During the operation I had requested him to discontinue the anæsthetic, as the patient was sufficiently under the influence. This he did; he had his finger on the pulse, and devoted his entire attention to the patient's condition. The mammary gland had been removed—care being taken by Dr. Martin to prevent entrance of air into the veins. I noticed the extreme pallor of the patient's face, and simultaneously Dr. Chesney said the pulse had failed, so as to be inappreciable. I immediately placed a bottle of nitrite of amyl to her nostrils—respiration was good. Asking Dr. Martin to hold it there, I prepared a hypodermatic syringe with 20 m. of tr. digitalis, and injected it in the precordial region. Dr. Martin meantime announced a slight recovery of pulse. I next administered several syringefuls (hypodermatically) of whiskey, and we had the pleasure of seeing the patient rally from this heart-failure—due, I think, to the depressing influence of the chloroform. It was carefully administered—with a sponge in a cone—*i. e.*, a towel stiffened with a sheet of paper in its folds; the sponge was held in its place in the apex by transfixing with long pins to prevent it falling down on the patient's face. The chloroform and ether were of reliable manufacture. It afterward developed that at this time the liver was involved in secondary cancerous inflammation, from which the patient succumbed a few weeks after recovery from the operation.

In the administration of ether alone, it has been my fortune to see on several occasions alarming symptoms due to the failure of the respiratory function. Several years ago Dr. Harris, of Parkersburg, West Virginia, and myself, were operating for laceration of the cervix uteri, assisted by Drs. Campbell and Hunt, of that city. The patient was in the semiprone position, Dr. Hunt administering the anæsthetic. She had been fully under its influence some twenty minutes (pure sulphuric ether being used), when Dr. Hunt found that respiration had ceased. He immediately drew forward the tongue, and he and Dr. Campbell endeavored to excite respiration. Not succeeding promptly, I aided them by artificial respiration; our joint efforts being of no avail, I suggested to Dr. Harris to withdraw the speculum and aid us. By this time the scene was alarming; her female relatives present were shrieking, "She's dead," and it looked as if it was too true. Dr. Harris seizing her by the legs elevated the body. Almost immediately a gasp, and again a second, and the crisis was over. After respiration was fully restored, the operation was completed without further anæsthesia.

On several occasions I have seen under ether the respiration suspended, requiring the drawing forward of the tongue and efforts made to excite respiratory action, which each time promptly succeeded; once from the effects of the ether and chloroform mixture not being as carefully watched as it should be, while a friend and myself were effecting delivery of an impacted transverse fœtus.

Dr. Packard speaks of the advisability of having "the administration confided to an assistant who should carefully watch its effects, paying no attention to anything else." Very true! but in general practice in the country this is impossible to secure: most frequently but two physicians are present, and the services of each are needed in the operation. Oftentimes the operator is alone—the assistants are such neighbors, male or female, as have the nerve to witness an operation, and the surgeon has to keep an eye on the patient's condition, as well as operate. This is unavoidable. It has been my duty to have to operate for fracture of the skull with depression in a child with no assistants except laymen; or again to amputate at the shoulder-joint under similar conditions, or to use anæsthetics repeatedly in difficult labor cases, with aid of one or two sensible women. It cannot be avoided, and the operator can, at least, only select the safest anæsthetic, enter upon his operation, exercising all vigilance possible, by instructing the layman intrusted with the anæsthesia what to look after, and then feel that if any accident occurs, the assuming of the responsibility is unavoidable to the man who has "the courage of his convictions." Still we must all feel that when the patient is fully anæsthetized there is a possibility of death ensuing; fortunately rare, but still possible.

In country practice it is not possible to go around "*cap-a-pie*," as described by Dr. Packard, with galvanic battery, etc., but we can take with us brandy, ammonia, tr. digitalis, and nitrite of amyl and a hypodermic syringe ready for use. While I have not seen any unfavorable results from chloroform alone, the conviction has been arrived at that it should not be used, except at times, to bring the patient under anæsthesia, where the struggling and excitement from ether render full anæsthesia from that agent very tardy or likely to fail, to be replaced by the ether as soon as the desired object is obtained.

Many fatal accidents are never reported. I know

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of one death from ether occurring in Baltimore several years ago, where an operation was being performed for a uterine fibroid, in a patient very greatly reduced by hemorrhage. This, I believe, was never published. Again some years ago, a friend in one of our towns in West Virginia, told me of a fatal case from chloroform happening to him. I asked him if he had published an account of it. "No, indeed, I felt too badly, and besides, it was published enough, without my reporting it," was the substance of his reply. I have been told of others occurring in military practice during the late civil war, which have never been reported.

Death from shock even after trivial operations occasionally occurs; see case reported by Dr. Tompkins, of Charlestown, West Virginia, in the *Medical Record*, last year, in which death from shock followed excision of the uvula. A few days ago I saw alarming attacks of syncope, the result of a hypodermatic injection of one-twelfth of a grain of morphia for neuralgia, in a lady subject to such attacks. From such cases, we can only wonder that accidents do not more frequently occur.

A LARGE RETINAL VEIN CROSSING THE MACULAR REGION.

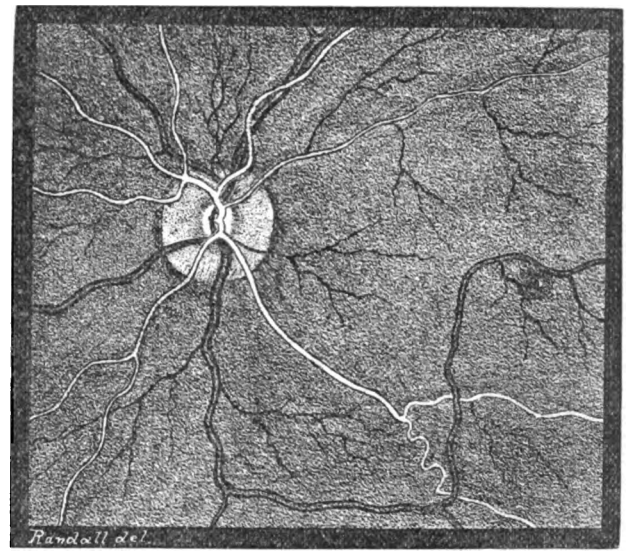
BY B. ALEX. RANDALL, A.M., M.D.,
OF PHILADELPHIA.

IN describing the vessels of the human retina, almost all authorities state emphatically that no vessels of notable size traverse the immediate neighborhood of the macula; and, to judge from the barren literature of the subject, exceptions to the rule would seem almost unknown. As it has been the writer's fortune to see several exceptions, he hopes that a record of the matter may have for others some of the interest which the cases have for himself.

The macular region is, of course, extremely vascular, as has been frequently shown, and as any one can see for himself by entoptoscopic methods; but these vessels are generally the most minute capillaries. Ayres[1] has shown in his drawing of this network, that one of his eyes has a rather larger vessel, discoverable with the ophthalmoscope, crossing the area usually non-vascular. Yet this is almost capillary in size, and it is safe to say that it would never have been seen objectively had not its presence been first subjectively proven. No note of a similar arrangement has to my knowledge been recorded by another observer.

The case of arterio-venous anastomosis which has been reported and figured by Mr. Marcus Gunn,[2] (and which I had the pleasure of studying at the meeting of March, 1884, of the British Ophthalmological), was notable also by reason of the unusual proximity to the macula of two conspicuous veins; and another closely similar case (not yet reported) which I observed in the practice of my colleague, Dr. Heyl, showed vessels of considerable size in the macular region. In neither of these, however, was the macula intruded upon, and the following case seems to be unique.

A young lady of sixteen was examined and treated by my colleague, Dr. de Schweinitz, and myself, in October, 1885, on account of trouble with her eyes. There was blepharitis, which could be controlled but not cured by topical treatment, and considerable brow-pain at near work; no other asthenopic symptoms. The vision was normal and equal in the two eyes, the accommodation apparently subnormal (8 D.); there was insufficiency of convergence of about eight degrees by the v. Gräfe test; little or no astigmatism. The ophthalmoscope showed each nerve small, oval, and surrounded by an absorbing pigment ring. The upper and lower disk-margins were veiled by retinal haze and striation, and the retinal vessels were tortuous and relatively large. The choroid was disturbed, its stroma woolly, and its vessels unduly visible. There was low hypermetropia in each eye, with apparent difference of level of the vertical and horizontal vessels. The right eye showed nothing else noteworthy.



In the left eye a large vein, coming from the outer retina a little above the horizontal meridian, passed horizontally across the upper margin of the maroon-colored macula, not more than its own diameter above the fovea; then, turning downward, it descended vertically to join the lower temporal vein about two disk diameters below the macula. Two branches—small indeed, but larger than are usually seen in the macular region—joined the vein just before and just after it crossed the maroon area, the one nearer the optic disk trenching upon the lower inner border of the macula. No other anomalies were noted. The condition was carefully and repeatedly studied and drawn by Dr. de Schweinitz as well as myself.

It may be added that the hypermetropia proved to be + 0.9 D. without measurable astigmatism, and that with the appropriate glass the patient has done excellently. There is no subjective recognition of

[1] Archives of Ophthalmology, xi. p. 476, 1882.
[2] Trans. of the Ophth. Society of the United Kingdom, iv. p. 156, 1884.

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the vessel except by entoptic methods; then the large, dark band is seen immediately below the fixation point, in total contrast to the usual picture of the delicate network seen in the right eye. Of her family, the father is myopic, the rest slightly hypermetropic; none show any similar anomaly.

Some five years ago, when I began to study the macula as an essential part of the ophthalmoscopic examination in every case, I saw a child whose left macula was crossed by a small vessel (a vein, if I recollect aright) which was touched by the tiny reflex of the fovea, and seemed actually to dip into its depression. I never saw the case again, and had no one by to confirm the observation—which was made in the haste of full dispensary work and not recorded at the time. Much doubt must, therefore, attach itself to the case; but I can so vividly recall the appearance that it is difficult for me to discredit my recollection of it, and I venture to note it here.

HOSPITAL NOTES.

THE TREATMENT OF PNEUMONIA IN THE PHILADELPHIA HOSPITALS.

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

DR. PEPPER reduces the initial high fever in cases of pneumonia in his wards (if, as unfortunately rarely happens, the case has been admitted just after the onset) by antipyrin or by the external use of cold water. It was for this, accompanied with severe pain, that venesection was formerly used; and he still advises its use at this earliest stage if high fever returns promptly after reduction by the above remedies. They will often produce a favorable impression, however, with less risk. Throughout the disease the fever must be carefully watched and often requires to be promptly reduced. Sometimes large doses of quinia—as thirty or forty grains given in two doses at intervals of four hours—will do this; but antipyrin or thallin or antifebrin is so much more prompt and certain that he prefers using one of them, and especially antipyrin, for the occasional control of hyperpyrexia, while giving continuously a moderate amount of quinia, say ten or twelve grains daily. Quinia meets several indications in pneumonia, and he nearly always gives it, adapting the dose to the grade of disease and special conditions of the patient. As the stomach must be very carefully guarded in pneumonia and everything avoided that might irritate it, it is often better to give quinia by the rectum.

He is more in the habit of using aconite than veratrum, but one or the other of these powerful and reliable arterial sedatives should be used during the early days of the attack, given in frequent and moderate doses so as to produce safely their physiological effect by lowering the pulse rate, relaxing the system and aiding in reduction of fever. Later, if the pulse loses force or after the area of the disease has become defined, the indication for arterial sedatives has usually passed.

Not only must care be taken to avoid irritation of the stomach, but in many cases especially in the early stage there is much gastro-hepatic congestion and irritation present, and here it is important to limit ourselves to relieving this by short courses of small doses of calomel with or without soda, using meanwhile quinia by the rectum to control fever. It is especially in these cases that aconite is preferable to veratrum on account of its less tendency to irritate the stomach. After the disease is developed, ammonium carbonate is preferred to stimulate respiration and favor resolution. It is usually given in single emulsion and in doses of five grains every two or three hours for an adult.

The diet must be adapted carefully to the state of the stomach. It should be liquid throughout and for the first two or three days should be very restricted, but after that may be more free and concentrated if well received. It is extremely important that the patient be not allowed to make any exertion. Rigid rest must, indeed, be insisted upon, for pneumonia is one of the diseases in which sudden death is apt to occur from any improper effort, as even of rising to sit upon a commode by the bedside.

The indications for alcoholic stimulants are drawn from the state of the circulation and nervous system. Many cases do well without any stimulus from beginning to end; but on the other hand the signs of cardiac failure or of failure of nervous force call for alcohol, which may be required to be given freely. Of course, it is to be adapted, as to amount and mode of administration, to the state of the stomach. In general a layer of cotton or wool batting stitched inside of the merino undershirt, over the outside of which a layer of oiled silk is placed, is preferable to poultices. The latter must be made skilfully to be pleasant; they must be changed frequently, and unless this changing is done with great care there are both fatigue and risk involved. Of course, the above remarks apply solely to croupous pneumonia.

DR. OSLER in hospital practice recognizes two groups of pneumonic patients—the alcoholic and the temperate. A majority of the former die in spite of all treatment; a majority of the latter get well with any, or with no, treatment. That the mortality from pneumonia in the large, general hospitals is uniformly above twenty-five per cent. is due to the fact that to them are admitted the debilitated paupers of the community with systems undermined by exposure and drink, and in no state to combat an acute disease. Alcoholics with renal inadequacy rarely survive pneumonia.

When the disease is limited, the fever moderate, and the pulse good, a dilute acid mixture is given with Dover's powder to allay the pain and the cough. Cotton wadding, or, if the patient prefer, light poultices are applied to the affected side. Blisters are never used.

As the disease can neither be cut short nor essentially modified by any remedies we at present possess, in severe cases we have to watch and meet the tendencies to death.

First. Heart failure from engorgement of the right chambers, and the lesser circulation, indicated by cyanosis and urgent dyspnœa. Free venesection can alone meet this danger, and should be performed on the first signs of cyanosis, with failing heart. Good results have followed the removal of from eighteen to twenty-five ounces of blood. It is often left too late, and to be efficacious should be done early. It is not always successful. Two cases bled this session died.

Second. The fever, against which quinine, antipyrin,

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and antifebrin are employed; but the action of antipyretics in pneumonia is more uncertain than in other acute fevers. Cold sponging and the cold pack are more effectual when the temperature becomes dangerously high.

Third. The increasing debility, systemic as well as cardiac, demands stimulation and careful feeding. A majority of the fatal cases die of progressive heart failure, against which alcohol is given freely. Digitalis is also employed, but the full tonic action of this medicine is rarely seen in the weak heart of fever. Camphor and strychnine are useful in this condition.

Of medicines, carbonate of ammonium is freely given. Opium is used to allay the early pain and to quiet the cough. Extensive bronchitis with liquid expectoration is a contraindication. Arterial sedatives are not much employed, but when the cases are seen early, aconite is sometimes given. In the mild cases they are not often needed, while in the more severe ones they may be positively injurious. Expectorants are rarely called for, and when used the ammonia and nux vomica fulfil the indications. A milk diet is given, varied as occasion arises.

JEFFERSON MEDICAL COLLEGE HOSPITAL.

DR. BARTHOLOW observes that the treatment of pneumonia (acute croupous pneumonia) must be adapted to the varying conditions of its several stages. The therapeutical stages may thus be—congestion, exudation, crisis or lysis, resolution. When the proper period for crisis or lysis passes without the occurrence of the phenomena indicating it, only two terminations can be expected—subacute or chronic pneumonia; death.

At the onset, when the chill occurs, he gives a full dose of quinine (15 to 20 grains) and morphine (half a grain). He does not claim that this may abort the disease, although he believes it does sometimes effect this, but that it certainly does limit the extent of the congestion then taking place. During the stage of congestion and commencing exudation he employs two remedies chiefly: aconite and opium. Of the former, two drops of the officinal tincture; and of the latter, ten drops of the deodorized tincture, are given every two or three hours; double these amounts being administered at the first dose. When exudation has occurred, for the aconite ammonia is substituted. He prefers the carbonate dissolved in the liquor ammonii acetatis, ten grains to the ounce, of which a tablespoonful every three hours is given.

During the first and second stages, should there be wakefulness or delirium, or the temperature continue high (at 105° or 106° F.), Dr. Bartholow prescribes chloral in fifteen grain doses, three or four times in the twenty-four hours. Indeed, he has found that cases do better with than without chloral, and this, probably, because chloral has a solvent effect on fibrin and fibrinous exudation. As it, also, lessens body-heat, and quiets restlessness, which is only less exhausting than delirium, it becomes directly useful as a remedy for these important elements of the morbid complexus.

As the crisis occurs, or the lysis begins somewhere from the fifth to the eleventh day, attempts at resolution that might otherwise prove abortive, may be changed into a well-defined crisis by the timely administration of quinine or alcohol in an efficient dose. The indication for the use of one or the other of these remedies, consists in the appearance of some one of the critical phenomena, without the concurrent presence of the others. A copious sweat, an attack of diarrhœa, the sudden return of the chlorides to the urine, the appearance of herpes on the lips, etc., are, of course, the usual objective evidences of the crisis. In the more serious cases, one of these signs may appear, and yet the attempt at resolution fail. It is then that the vital forces need the aid of one or both of these remedies to accomplish the revolution in the pathological process; then quinine, if the dominating factor is elevated temperature; or alcohol, should the cardiac energy appear insufficient; or both, if these conditions are combined.

The persistent use of quinine or of alcohol, according to Dr. Bartholow, is not to be commended. Quinine increases the digestive weakness, and alcohol, in any considerable quantity embarrasses the circulation and impairs the oxygenation of the blood. Nevertheless, alcohol has a distinctive place in the treatment of alcoholic pneumonia. The pulmonary inflammation is often masked by the delirium tremens which is excited by the sudden withdrawal of the accustomed stimulus, and the failure of the nutrition; and, hence, under these circumstances, the alcoholic food must be freely supplied.

As regards counter-irritation, he is clear that only a mild irritation is proper; for whilst this, by a reflex action, stimulates the vasomotor system, and thus lessens congestion, severe counter-irritation, on the other hand, depresses the trophic system and hinders rather than promotes nutrition and repair. A succession of mustard plasters, each applied only long enough to redden the skin slightly, is the best form of counter-irritant. Stupes of turpentine are cumbrous, oppressive, and disagreeable, and blisters are unsuitable, unless applied long enough merely to act as a rubefacient. The counter-irritant or rubefacient cone now made for topical applications, is a very convenient, even elegant, preparation for this purpose.

Venesection continues to be a *vexata questio*. In the old antiphlogistic days, bleeding was so completely overdone, that any merit it has was overwhelmed in the general condemnation. There are, however, two conditions of the circulation in pneumonia, in which a timely bloodletting is of great value: at the outset in a vigorous subject, when congestion is increasing in depth and extent; and at the approach of the crisis, when the heart labors in consequence of overfulness of the veins, and ischæmia of the arteries.

The necessity for close attention to the state of the nutritive functions is distinctly recognized. As the gastric juice in cases of pneumonia is deficient in the constituents required for the formation of peptones, Dr. Bartholow is careful to supply them with the aliment.

THE PENNSYLVANIA HOSPITAL.

IN the treatment of acute pneumonia, DR. A. V. MEIGS ordinarily pursues a certain plan which is modified according to the needs of each particular case. The patient is confined rigidly to bed, and, if advanced in years, it is important even that the bed-pan and urinal be used. Food is administered at regular intervals, and

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if the case be one of severity it should be liquid, and is best given every two or four hours. In severe attacks milk and beef-tea are given alternately every two hours, three or four ounces at a time. Medicines are given on a plan corresponding with the system upon which nourishment is administered, and usually are taken a quarter of an hour after food; thus the longest possible period of undisturbed rest is afforded the patient. A careful attention to details certainly in the long run conduces much to the recovery of patients. No stimulant is given in mild cases, particularly in young persons, so long as they progress with seeming safety. In severe attacks the patient is freely stimulated, from two to twelve ounces of whiskey, or in rare instances even more, being given in twenty-four hours. It is best given in the milk. Ordinary medicinal treatment is the administration in pill form every four hours of digitalis, gr. ⅓; opium, gr. ⅛; and quinine, gr. j. In severe attacks this is suspended and ammonia substituted, or the two are given in conjunction. The most reliable form of ammonia is the carbonate, of which five grains are given every two to four hours, according to circumstances, or there may be administered at the same interval a drachm of the aromatic spirit, or half an ounce of the solution of the acetate.

As yet it has not been his fortune to meet with a case in which he has thought it advisable to bleed, although he believes it to be good practice, if done judiciously in the early stage.

The application of dry cups is a measure often attended with great relief of the suffering, and benefit to the patient, in the early stage of the disease, particularly if the attack is complicated, as is very commonly the case, with much pleuritic pain. From eight to twenty cups are usually applied.

With regard to external applications, he uses no poultices, which are difficult to keep in place, and once begun are hard to get rid of, and become exceedingly troublesome when the sweating stage comes on. Sometimes he has cotton or wool, preferably the latter, sewed upon the inner surface of the shirt.

This is not the place to dilate upon the utter inadequacy of any known treatment to avert the fatal result in some of the more sudden and violent forms of the disease. A careful and patient pursuance of the plan detailed has proved more satisfactory in Dr. Meigs's hands than any other in the management of such cases as have been in his charge in the Pennsylvania Hospital, if they seemed amenable to any treatment.

PHILADELPHIA HOSPITAL.

DR. TYSON recognizes that in the class of patients admitted to this hospital the sthenic form of pneumonia requiring vigorous antiphlogistic measures is rarely seen. He rarely, therefore, practises general bloodletting, but wet-cupping over the affected lung is frequently resorted to. The cupping is followed by jacket poultices, which are continued until the case terminates favorably or unfavorably. Blistering over a liberal area is sometimes substituted for the cupping.

The antipyretic measures used are either digitalis and quinine in full doses, or quinine and the fluid extract of veratria, the latter in five drop doses every two hours, until the pulse is decidedly reduced. Digitalis is used in cases where debility is conspicuous, and requires to be combated. It is given in doses of fifteen drops of tincture, or two fluiddrachms of the infusion every three hours.

From the onset stimulants are freely used, and half-ounce doses of whiskey are given every two hours, or hourly; while it is not unusual to give an ounce of whiskey every hour. It is generally given in the form of milk punches.

Stimulant expectorants are given only when the exudate begins to soften, as indicated by the *crepitans redux*, and cough tending to become loose. Carbonate of ammonium is generally used in doses of from five to ten grains. In cases requiring less stimulation, the ammonium chloride is prescribed in fifteen grain doses. An old practice of the hospital was to give the officinal liquor potassæ as an expectorant, with the idea that it "thinned" the viscid secretions. There is reason to believe that potassium carbonate has a similar effect.

DR. J. C. WILSON treats his cases of lobar pneumonia in the wards of this hospital symptomatically. The patients, who are drawn from the pauper class or those closely bordering upon it, are not often young, almost always debilitated by destitution or previous disease, frequently the subjects of chronic alcoholism. A considerable proportion of them are admitted at the close of a more or less prolonged debauch. Very few cases of primary pneumonia develop in the wards. The patients are commonly received in the first week of the disease, but very rarely so early as the first day. Neither general nor local bloodletting is practised. The plan usually pursued is as follows:

The patient is bathed and put to bed. If there be no reason to depart from the rule, a mild mercurial purge is at once administered. In case of diarrhœa, great exhaustion, or at an advanced period of the disease, it is omitted. A small dose of opium or a hypodermatic injection of morphine follows after a time, and is repeated occasionally during the attack as may be required to control pain or induce quietude and sleep. After the bowels have been relieved a single large dose of quinine, rarely less than xvj or more than xx grains, is given. From this time until defervescence quinine is not again used except in response to some well-defined indication such as excessive pyrexia. Ammonium carbonate in v grain, less frequently vijss, or x grain doses, is given every second hour, in many cases, throughout the attack. Alcohol is freely used, the frequency and amount of the dose being regulated by its effect upon the heart and nervous system, the total quantity in twenty-four hours seldom exceeding twelve fluidounces of whiskey. In favorable cases with moderate fever and especially in the absence of a previous history of addiction to drink, it is used sparingly. Nevertheless all the cases receive a certain amount of alcohol. Pyrexia, when moderate, demands no special therapeutic measures; when intense, it is treated by ice-poultices to the chest, cold compresses, the cold pack, antipyrin, or large doses of quinine. Digitalis, veratrum, belladonna, and aconite are very seldom used and then only to fulfil special therapeutic indications. Pilocarpine is not regarded as curative. The diet is light, bland, nutritious, and of moderate amount. Turpentine stupes are repeatedly applied, sinapisms occa-

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sionally, blisters never, save in cases of delayed resolution. Poultices are only exceptionally employed, a light jacket lined with cotton batting or fine carded wool being found more comfortable, more convenient, and fully as useful.

Upon the occurrence of defervescence alcohol is rapidly decreased in amount, the diet increased, solid food added, and quinine in smaller doses administered. It is usually advantageous to give iron or arsenic for a time. Flying blisters, or the external use of iodine and small doses of potassium iodide may be useful in delayed resolution. Convalescent patients are not kept long in bed, but are encouraged to sit up and move about as soon after complete defervescence as their strength will permit.

Despite the greatest care in the management of this disease in the Philadelphia Hospital, the death-rate, owing to the character of the patients, is high.

MEDICAL PROGRESS.

ANTISEPTIC OBSTETRICS IN THE BOSTON LYING-IN HOSPITAL.—The following is the routine practice described by Dr. Richardson, of Boston, in an article in the *Boston Medical and Surgical Journal* of January 27, 1887.

On her admission to the hospital, if time allows, the patient is given a bath. In every case the genitals and the surrounding parts are washed with a solution of the bichloride of mercury (1 : 3000). A basin containing the same solution and a nail-brush is placed on a stand side of the bed. The physician and nurse in attendance disinfect their hands every time they have occasion to examine the patient or touch the neighborhood of the vulva. The examining finger is smeared with an ointment made of one part of the oil of eucalyptus and seven parts of vaseline. A vaginal injection of the corrosive sublimate solution is given at the beginning of labor, and this is repeated, when circumstances permit, at the end of the first stage. As the head distends the perineum and is expelled, the parts are kept clean, when occasion requires, by the use of charpie dipped in the mercurial solution. After the birth of the child no undue haste is made to bring about the expulsion of the placenta. This is effected, if possible, by Credé's method of expression, great care being taken not to introduce the hand within the vulva, if such a procedure can be avoided. The perineum is carefully examined, and if there is sufficient laceration to require sutures the parts are washed with the corrosive sublimate solution, after which the edges are brought together by means of carbolized catgut sutures, some powdered iodoform being subsequently applied over the seat of the laceration. The vaginal injection is repeated, and the antiseptic pad is applied, being pinned at the four corners to the abdominal binder by means of safety-pins.

During the convalescence the pad is changed as often as occasion requires, the nurse taking care to disinfect her hands thoroughly before removing the pad. Each time the pad is changed, the parts around the vulva are sprayed with the mercurial solution by means of a hard-rubber sprinkler, made by the Davidson Rubber Company to fit their syringes, which are the ones used in the hospital. It is usually necessary to change the pad during the convalescence about as frequently as it was formerly necessary to change the napkins which the patient wore before the pad was introduced. If it is necessary to use a catheter to empty the bladder, that instrument is, of course, to be disinfected, as well as the hands of the person using it. Care is also taken, before introducing the catheter, to wash the parts in the neighborhood of the meatus with the disinfectant, in order to avoid the introduction of blood, vaginal or uterine discharges within the urethra.

The use of the antiseptic pad is continued until the patient sit up, or until all danger of septic infection has passed. Whenever the mother has given birth to a putrid child or a partially decomposed placenta, an intrauterine injection of the corrosive sublimate of the same strength is given at the close of the labor, in addition to the vaginal one already alluded to. Should it be deemed advisable to give an intrauterine injection, it is safer, after washing out the uterine cavity with the mercurial solution, then, without removing the nozzle of the syringe, to inject a few ounces of a solution of carbolic acid (1 : 40) of the same temperature (112°). By this method any danger of mercurial poisoning (which sometimes, though rarely, follows the use of corrosive sublimate as an intrauterine injection) is avoided.

In case it is found necessary to use instruments during the delivery, care is taken to disinfect them by means of a solution of carbolic acid (1 : 40). The same solution is used for the needles, needle-holder, etc., which may be required for sewing up any perineal laceration. Carbolic acid is used in these cases, in preference to the bichloride of mercury, on account of the corrosive action of the latter on the instruments. If, for any reason, it is necessary to introduce the hand within the uterine cavity, great care is taken thoroughly to disinfect the arm as well as the hand of the operator.

The antiseptic pad is made as follows: A strip of Canton flannel (19 by 4½ inches) is placed upon a table, with the soft side uppermost. On the centre of this is laid a piece of carbolized cotton (11 by 4½ inches), about half an inch in thickness when not compressed. Over the centre of this is a piece of oiled muslin (9 by 4 inches). On this is placed the pad itself, which is made of what is known as absorbent scrap or waste done up in cheese-cloth, and of a size sufficient to cover the oiled muslin, and about half an inch in thickness, before it is wet or compressed. This pad, before using is dipped in a solution of corrosive sublimate (1 : 3000) and dried. Whenever a pad, with its binder, is removed and a fresh one substituted, the old pad, including the Canton flannel, oiled muslin, etc., is burnt up.

Since the fall of 1885 the above has been the method in which antiseptics have been used in the hospital. The results have demonstrated, beyond the possibility of a doubt, the great value of such prophylaxis."

THE PREPARATION OF SOLUTIONS OF CORROSIVE SUBLIMATE.—ANGERER, of Munich, has observed following the use of undistilled water in dissolving corrosive sublimate, an insoluble precipitate which Fürbringer has shown to be different oxides of mercury produced by the alkaline carbonates of the water.

In the Surgical Policlinic of Munich, Fürbringer's analyses were repeated, and it was found that light,

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warmth, and the presence of air greatly influenced the precipitation, and that with the city water of Munich a precipitation to an amount of 50 per cent. of the mercurial used occurred.

The higher the grade of hardness of the water the greater the separation of the mercurial. Fürbringer states that the addition of salicylic, hydrochloric, or acetic acid, 15 ♏ to 8 ♏ to the quart, hindered this separation, and the Munich experiments showed that the addition of 15 grains of sodium chloride to 15 grains of corrosive sublimate resulted in a permanently clear solution.

The interesting question arose, however, as to whether the addition of the salt did not result in other mercurial combinations of less antiseptic value: experiments were made upon this point, and the following conclusions reached: Solutions of sublimate alone and of sublimate with salt, each 1 to 50,000 in strength, were tested, as in weak solutions differences are most apparent.

Sterilized silk was thoroughly impregnated with anthrax bacilli, and a portion of the silk was allowed to remain ten minutes in a solution of sublimate alone, while another portion remained ten minutes in a solution of mercurial and salt: both of the solutions were 1 to 50,000. The silk was then washed with alcohol and sterilized water, and transferred to five test specimens of sterilized agar-agar. These proof-specimens were kept in a culture-oven for six days at a temperature of 36° C. without the development of bacilli.

An immersion of five minutes in the solutions resulted in the presence of bacilli in four out of five specimens placed in sublimate alone, and in three out of five placed in the mixed solution. It is evident, then, that the combination of the mercurial and the salt is equally efficient and more soluble than the mercurial alone.

Angerer has ordered made compressed tablets of sodium chloride and corrosive sublimate, eight grains of each, which he finds efficient in preparing solutions. —*Centralblatt für Chirurgie*, Feb. 12, 1887.

[The above suggests at once Sir Joseph Lister's combination of ammonium chloride and corrosive sublimate in his Sal Alembroth (MEDICAL NEWS, July 3, 1886, p. 27): the points of interest being the substitution of so obtainable a substance as sodium chloride for ammonium chloride, and the sterilizing effect of such weak solutions.]

PRESERVATION OF RUBBER APPARATUS.—An inquiry has been carried out under the direction of the French Minister of War, with the object of ascertaining the cause and the remedy for the peculiar changes which articles made of India-rubber undergo when kept in stock, the annual loss to the government from deterioration of this class of goods being very considerable. Experience shows that India-rubber, after a time, loses the very qualities which made it useful, for it becomes dry and brittle. Articles kept in boxes, such as Higginson's syringes, Esmarch's bandages and drainage tubes, are particularly liable to deteriorate. Unfortunately, the commissioners, after a long and patient investigation, are not able to suggest much more than could have been recommended before. They advise, for instance, that Esmarch's bandages should be taken out of the boxes at least once a month, unrolled and manipulated. Drainage tubes should be hung up in a cool place, or soaked in a non-putrescible fluid. Finally, all objects made of rubber should be kept in a cool, damp place at a constant temperature, and sheltered from light, heat, and frost. Seeing that in many cases these conditions cannot be complied with, it is recommended that the bandages should be made of pure leaf rubber in lieu of the elastic tissue usually employed. The purer the rubber, the less readily does it undergo these structural alterations, and the lighter it weighs; its weight is, therefore, a sure guide to its quality. In consequence of these inquiries, the Minister has ordered that, in future, all rubber articles are to be made with pure rubber of the best quality, preferably with the leaf rubber. The quality of the articles will be gauged by their specific gravity in order to insure the purity of the material employed.—*American Druggist*, Feb. 1887.

PURIFICATION OF WATER BY CHEMICALS.—PROF. DOBRALSANÉNE, of St. Petersburg, recommends the following to precipitate the impurities of water:

To 12 quarts of water he adds 7½ grains of perchloride of iron, and 10½ grains of crystalline sodium carbonate; in 45 minutes the water was perfectly pure. —*L'Union Médicale*, January 22, 1887.

POISONING BY HERRING-ROE.—In the *France Médicale* a case is related in which a man was poisoned by eating three hard-roed herrings. The symptoms were a feeling of oppression, vomiting, burning sensation in the œsophagus and stomach, very violent abdominal pains, and dysentery. The attack lasted about forty-eight hours, and could be traced only to the herrings. Cases of this kind are by no means rare. It has long been known that caviare (sturgeon-roe) and the ova of pike, barbel, perch, and other fish, have frequently given rise to symptoms of poisoning in Russia. M. Goertz, a Russian physician, treated three cases of this kind in one family; the patients had eaten hard-roe, while the other members of the family who ate the soft-roe experienced no inconvenience. Dr. Müncheimer, of Munich, in 1875 reported three cases of poisoning after eating barbel-roe. These cases, which were very severe, were treated with ice and tincture of opium and saffron. Prof. Naunyn reported a similar case in Berlin in 1884. Among the numerous cases reported in Russia, herrings appear to have been the cause in only one. According to Huselmann, accidents of this nature, due to caviare of bad quality, are frequent and sometimes fatal among the poorer classes in Russia. It is impossible, according to him, to say exactly what the poisonous element is, and it is useless to hide one's ignorance by attributing all the effects to ptomaines. In these cases, as in poisoning by mussels, oysters, and other fish, the idiosyncrasy of the individual must be taken into account.—*British Medical Journal*, Feb. 12, 1887.

CURE OF ABDOMINAL ANEURISM BY LORETA'S METHOD.—DR. JOHN F. MORSE, of San Francisco, reports in the *Pacific Medical and Surgical Journal*, of February, 1887, a case of abdominal aneurism, whose treatment he describes as follows:

The patient, a man aged thirty-two, denied venereal infection and alcoholic excess.

On the 4th of March, 1886, he was struck violently in the abdomen by a coal bucket, which occasioned him at

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the time no serious inconvenience. A week later, however, he began to suffer from vomiting and constipation which were accompanied by intense pain in the back, sides, and abdomen, and he then noticed for the first time a pulsating swelling in the abdomen. He was confined to his bed for one month, and then came under the care of Dr. Morse, who diagnosticated abdominal aneurism, and ordered treatment of rest, low diet, and large doses of potassium iodide for three weeks. At the end of this time he left the hospital much improved, and continued his work for three months: during this period the tumor had grown larger, and the pain in the back became so intense that sleep could only be obtained by the use of opiates.

On November 17, 1886, the patient was etherized, and the abdomen cleaned and disinfected. An incision four inches long was made over the tumor through the linea alba. On opening the abdominal cavity the intestines were withdrawn and covered with warm cloths. The aneurism was then exposed and found to be about the size of both fists.

An exploring needle, one millimetre in calibre, was thrust into the sac, when a stream of arterial blood spurted through it. One yard and a half of one-half millimetre silver-plated copper wire was carefully passed through the needle into the aneurism and the needle withdrawn. The slight hemorrhage resulting was readily stopped by touching the small opening with pure carbolic acid and glycerine. After the usual toilet of the abdomen, the abdominal wound was united by means of five deep and four superficial stitches. An antiseptic dressing of carbolized gauze was applied.

After the operation the patient suffered several days from vomiting, but his temperature never rose above 101° F.

The day following the operation the pulsation in both femorals was scarcely perceptible, but soon appeared again.

On the 23d of November, a week after the operation, the dressing was removed for the first time, and the abdominal wound being healed, the stitches were removed. The pulsation over the tumor was very slight.

Nothing of importance transpired until the 26th, when the patient complained of great pain in the left groin, and an examination revealed the left leg enormously swollen, œdematous, and cold, and no pulsation was to be felt in the left femoral. In the right femoral it was very feeble. The left leg was wrapped in cotton and warm bottles applied. In two or three days the swelling had disappeared, the pulsation in the left femoral not reappearing.

In another week all dressings were taken off and the patient continued to improve.

December 13. The pulsation over the aorta is no stronger than over a normal aorta, and auscultation reveals no bruit in the sac, which is extremely hard to the touch. The patient is ordered to remain quietly in bed, on his back, in order that the clot may become firmly consolidated.

17th. Pulsation over tumor scarcely perceptible, no bruit to be heard on auscultation. Patient is in excellent condition and anxious to get up. Wound in abdomen entirely healed. Pulsation in left femoral has not returned, is slight in right femoral.

28th. Patient has been up for a week. Pulsation has returned in left femoral, slightly increased pulsation over sac. Patient has no pain and is in excellent condition.

January 7, 1887. Patient is about to leave the hospital. Pulsation in tumor again diminished. Tumor reduced one-half in size at the time of operation, consists of a hard nodule. No bruit. Scarcely any difference in pulsation of femorals.

This, the first successful case of the kind, proves the feasibility of Loreta's method of treating aneurisms of the abdominal aorta.

ANTIFEBRIN.—LÉPINE reports his observations on the use of this drug in typhoid, in which he considers it as efficient as double its dose of antypyin. The time when the temperature will probably reach its highest point should be observed, and eight grains of antifebrin should be given an hour previous to this time. Typhoid patients apparently obtained remissions which influenced the disease favorably by this means. When the temperature fell there was no collapse; the patient felt well; the pulse-rate was slightly increased; the vigor of the heart's action was not lessened, but was often increased. In those very severely ill, cyanosis and lessening of the secretion of urine were observed.

Antifebrin, when given in severe quotidian intermittent, cured the paroxysm promptly without cyanosis. The drug is probably an antiseptic, as all antipyretics act antiseptically against certain microbes. The presence of aniline, set free from antifebrin, would account for the antiseptic action of antifebrin.

As a nervine, the drug quieted the lancinating pains of tabes in one or two doses of eight grains. The patient felt relieved after half an hour without any other apparent effect. It acted well in two cases of neuralgia; in a case of multiple sclerosis the tremors were hindered, and the strength of the patient increased.—*Centralblatt für die gesammte Therapie*, January, 1887.

PRESCRIPTIONS FOR MENORRHAGIA AND METRORRHAGIA.—The *Revue de Thérapeutique* for February 1, 1887, gives the following for severe menorrhagia, as original with DENYAU:

℞.—Aquæ dest. . . . . ʒxv.
Gummi tragacanth.,
Chloroform. pur. . . . . āā ʒj.
Tinct. cannabis indicæ . . gt. xxx.—M.
Sig.—Take in two doses.

The following are the prescriptions of HILDEBRANDT and FELLNER for profuse metrorrhagia:

℞.—Ext. fl. hydrastis canad.,
Vini malaga,
Syrupi cinnamom. . . . āā ʒijss.—M.
Sig.—One or two teaspoonfuls every two hours.

Berberine or hydrastine, alkaloids of hydrastis, may also be used. FELLNER gives the following:

℞.—Berberin. phosphat. . . . gr. xv.
Dissolve in ʒv of boiling water.

Add:
Vini malaga,
Syrup. cinnamom. . . . āā ℈iijss.
Sig.—Twenty drops every two hours.

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Also:

Hydrastin. hydrochlorat. . . . gr. xv.
Dissolve in distilled, boiling water . ʒijss.

Add:

Aquæ aurantii floris,
Syrup. tolu vel syrup. menth. piper. āā ℥iijss.
Take in the same doses as preceding.

ABSORPTION FROM THE MUCOUS MEMBRANE OF THE URINARY BLADDER.—The question as to the occurrence of absorption through the mucous membrane of the urinary bladder has often been considered both at the bedside and in the laboratory, but the results have hitherto been sufficiently discrepitant to leave room for more exact work on the subject. The latest contribution toward a solution of the problem bears the mark of exact, scientific observation, and seems to us largely to settle the matter. In the current number of the *Journal of Anatomy and Physiology* there is a paper on "Absorption from the Mucous Membrane of the Urinary Bladder," by Dr. Herbert H. Ashdown, late senior Demonstrator of Physiology in the University of Edinburgh, in which a critical summary of the work already done is given, and a series of carefully conducted experiments is reported. The observations were made on rabbits and dogs, and consisted essentially in the analysis of results obtained by the intravesical injection by the urethra of substances possessed of known physiological properties or readily estimated chemical reactions. The author divides his experiments into three groups: (1) Those in which the drugs administered have a sufficiently distinct physiological action of their own to indicate their presence when absorbed into the system; (2) those in which the renal elimination of the drugs given can be readily demonstrated; (3) those in which the quantitative analysis of a solution of known chemical composition can be conducted after it has remained for several hours in the bladder. The results of the triple series are strikingly similar, and appear to justify Dr. Ashdown's conclusions. These are: (1) That absorption of a very large series of chemical substances does take place from the mucous membrane of the urinary bladder when in a perfectly healthy condition; (2) that the urinary constituents themselves—those substances eliminated by the kidney, as effete products of the system—are absorbed from the bladder in varying productions, this applying more especially to the water and urea, but also, though to a less extent, to the inorganic solids; (3) that the degree of distention of the bladder plays a most important part in increasing or diminishing the rapidity of such absorption; (4) that regular rhythmical contractions take place in the muscular wall of the bladder; that these contractions are largely influenced by the degree of distention of the bladder, being most marked with a moderate amount of distention of the viscus, and but feebly marked in slightly distended or in over-distended conditions; and that the character of these contractions is largely affected by the nature of the fluid contained in the bladder.—*British Medical Journal*, Feb. 12, 1887.

ANTIPYRIN IN HEMICRANIA.—UNGAR, of Hamburg, was led, from the similarity of action between salicylate of sodium and antipyrin, to give the latter for hemicrania. From his own observations, and those of his colleagues, he was led to believe that antipyrin is more rapid and certain in its effects than the salicylate. In the beginning of the attack, and in its prodromal stage, the remedy had an abortive effect or made the paroxysms much milder than usual. Patients who were generally obliged to forego their usual occupations, and who could not sit up during the attack, were generally able to go about with comfort. When taken after the inception of the attack, and when it had developed considerable intensity, antipyrin had still a most favorable effect. Among the patients thus benefited were those who had tried all other known remedies without result. Antipyrin, however, will not relieve, in all cases, the distressing symptoms of hemicrania; there are patients with whom it has no effect, and others who are upon one occasion benefited, and who receive no relief in another trial of the remedy; the observer was not able to recognize a ground for discrimination in these cases.

In those cases in which antipyrin acted favorably a dose of fifteen grains, once administered, was generally sufficient; exceptionally, twenty-three grains were given once. Its good effects were usually manifested in one hour after taking, and when this was not the case, the first dose was repeated, and good results rarely failed. It was generally ordered in capsules or wafers. Dangerous or unpleasant effects were not observed after its use.—*Centralblatt für die gesammte Therapie.*, Jan. 1887.

PNEUMOTOMY IN PULMONARY ABSCESS.—DR. RUNEBERG, Professor of Medicine at Helsingfors, in a clinical lecture which has been published in a Swedish journal published in Finland, gives an account of a case of pulmonary abscess consequent on acute pneumonia, where he had performed pneumotomy with success. In addition to this he had collected notes of ten other cases. Leaving aside three of the eleven on account of uncertainty in the diagnosis, five of the remaining eight recovered, or at all events improved very decidedly, and in the rest, which were fatal, death could not in any way be attributed to the operation, so that Dr. Runeberg considers that when the diagnosis of pulmonary abscess is clear, and it is in an accessible situation, the best practice is certainly to open it. He then refers to the question of operating for gangrene of the lung. He himself had had a case of this, together with bronchitis and bronchiectasis; after the operation secondary gangrene and septicæmia occurred, which proved fatal. In seventeen other cases of gangrene he quotes from medical literature where pneumotomy was performed, seven recovered more or less completely, and the fatal termination of the remaining ten did not appear to have been attributable to the surgical interference. As to the mothod of opening the lung, Dr. Runeberg is in favor of resecting a rib, and then using the thermo-cautery. He does not approve of washing out the cavity with antiseptic lotions, thinking them dangerous, and believing that ample drainage is sufficient. In conclusion, he mentions several pneumotomy cases he had collected: two were for ecchinococcus, both terminating favorably; six were for bronchiectasic cavities with gangrene; and six for tubercular cavities. In the latter two classes of cases he does not think operative procedures are advisable.—*Lancet*, Feb. 12, 1887.

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OF MEDICAL SCIENCE.

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SATURDAY, MARCH 5, 1887.

ANTISEPTIC OBSTETRICS.

THE question of the hour in regard to obstetric practice relates to the use of antiseptics. Last year two important contributions to the subject were made in this country, one by Kucher, in his volume upon *Puerperal Convalescence and the Diseases of the Puerperal Period*, and the other by Garrigues, upon "Antiseptic Midwifery." If to these there had only been added a translation of the volume of Fritsch upon the treatment of puerperal affections, of which a French edition appeared in 1885, the American profession would have available the three most useful, brief works presenting the importance of using antiseptics in obstetric practice, and the methods of employment advised by eminent obstetricians.

The last utterance upon the subject is by RICHARDSON, in a paper entitled "The Use of Antiseptics in Obstetric Practice," published in the *Boston Medical and Surgical Journal* of January 27. Richardson states, in considering the etiology of puerperal septicæmia, that "to-day it is unquestionably admitted by many leading obstetricians that the infection must come from without." This expression of opinion, however, is not sufficiently strong, he might have distinctly said there is no such disease as autogenetic puerperal fever. Ernst, expressing the view of bacteriologists, is quoted fully in the paper as to the different varieties of bacteria which have been found in puerperal fever, the quotation concluding with the statement: "The problem is unquestionably how to keep these bacteria out of the body. Without their entrance there will be no puerperal fever or septicæmia." These are no ambiguous words, and they plainly and clearly express the truth as at present known; they remand to the region of past darkness or of only partial light the decayed doctrine of autogenesis. Here is a most useful working hypothesis furnished, and so much even the sceptics must admit, a working hypothesis which in its results has established its probable truth.

Let us see how Richardson keeps omnipresent bacteria out of the puerpera, does not allow them to come in contact with the wounded surfaces, for, as was especially emphasized by Sirèdey a few years ago, and as is maintained by most obstetricians today, without a wound the infectious agent cannot enter. The parturient patient is given a bath, and the genitals and surrounding parts are washed with a solution of the corrosive chloride, 1 to 3000. Thorough disinfection of the hands is made by the nurse and by the obstetrician, and when the latter makes an examination the fingers are covered with a mixture of oil of eucalyptus and vaseline; an injection of corrosive sublimate is made at the beginning of labor, and at the conclusion of the first stage and after labor is over; tears of the perineum, if requiring it, are stitched with catgut, powdered iodoform being afterward applied, and, finally, the antiseptic pad advised by Garrigues is employed.

Antiseptic injections during labor are clearly indicated, first, if the woman has been suffering from an abundant and offensive leucorrhœa; and, second, when the labor is protracted, particularly if manual or instrumental delivery be required. Otherwise, we would have only one injection used, and that immediately after labor. In this respect we prefer the practice of Fritsch to that of Richardson, and accept as ordinarily true the statement of the former as to all vaginal injections, "there is nothing hurtful in the vagina, and the detersive injections have no object." As to anointing the fingers before making a vaginal examination, it is quite probable, as taught by Fritsch, that this is unnecessary, since the fingers have been just removed from an antiseptic solution, the parts are relaxed, softened, and lubricated by the abundant secretions, and resistance and friction are absent, provided frequent injections, especially such as coagulate the albumen of the secretions, have not been made.

As to the antiseptic pad so warmly endorsed by Richardson, previously enthusiastically advocated by Garrigues, the results which each has had speak warmly in its favor. But if the external sexual organs are thoroughly cleansed twice a day by a warm antiseptic solution, and if aseptic napkins are used, the antiseptic pad may be omitted.

Antiseptic obstetrics makes sure progress, though differences of opinion may be held as to those methods which are most useful and necessary. The day surely comes, if not already here, when puer-

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peral fever will no longer be thought by any an accident, and the obstetrician will be as careful to guard against septic infection as he is when he performs abdominal section. If he has failed in these precautions, and has a fatal case of puerperal fever, he can escape neither the reproach of his own conscience nor public censure.

CALOMEL AS A DIURETIC.

SEVERAL writers have recently called attention to the value of calomel in the dropsy of heart disease, and in *L'Union Médicale*, No. 12, 1887, LONGUET gives a *résumé* of the published papers. JENDRÁSSIK of Buda-Pesth, noted a marked diuretic effect from small doses administered to a syphilitic patient with cardiac dropsy; the diuresis was so abundant and apparently so directly a result of the mercury that he employed the remedy in a series of seven cases, and in all with decided benefit. In the first case there was a mitral lesion with œdema of the legs, Cheyne-Stokes breathing, and a very serious general condition. Digitalis and caffeine were no longer effective, and the urine had fallen to 22 oz. in the day. On the second day after the administration of the calomel there was diuresis and the amount of urine increased daily until a maximum of 297 oz. was reached, and as the dropsy disappeared the quantity gradually became normal. Three weeks later, on return of the dropsy with dyspnœa and Cheyne-Stokes respiration, the calomel was again successfully resorted to, and the patient ultimately left the hospital in good condition. From ten to fifteen grains were given daily in divided doses. The effect is not produced if the mercury acts on the bowels, and the diuresis is always preceded by symptoms pointing to the absorption of the medicine, such as the metallic taste, stomatitis, or ptyalism.

STILLER, as noted in THE MEDICAL NEWS of Feb. 5, reports equally favorable results in fourteen cases, but he gives smaller doses in the day, seven to ten grains. The diuretic action is not often evident until the third or fourth day. Opium may be added to check diarrhœa without interfering with the special effect of the mercury. He considers it a very valuable adjunct to digitalis in the treatment of heart disease.

MENDELSOHN confirms these results and gives calomel in cases in which the digitalis is inoperative, or in which it has had to be suspended for fear of its cumulative action. He gives three or four grains three times a day, and the diuresis is usually manifest within forty-eight hours, and before there are signs of absorption.

The mode of action is not very clear, but it is not due to any effect upon the heart, as the contractions are not increased in vigor, nor is the arterial tension raised. It is apparently a direct effect of the mercury on the kidneys. Longuet calls attention to the fact that Stokes recommended calomel in cases of dilatation of the heart with congestion of the lungs and liver, cardiac asthma and dropsy, and noted great diuresis with rapid disappearance of the anasarca. There is certainly clinical evidence of sufficient weight to warrant a full trial of this method at the hands of the profession.

CEPHALIC VERSION IN PRESENTATION OF THE PELVIS.

THE performance of bimanual version has been recognized as inoperative in cases of shoulder presentation. Of late, however, some obstetricians have sought to include all presentations except that of the vertex. Thus we find in the *Nouvelles Archives d'Obstétrique et de Gynécologie*, for January 25th, the report of a recent discussion in the Paris Obstetrical and Gynecological Society as to the propriety of version by external manœuvres, in case of pelvic presentation, substituting for this the head. The discussion was begun by PAJOT, and among the participants were GUÉNIOT, CHARPENTIER, DOLÉRIS, and PORAK.

Pajot believed that this operation should be proscribed, for in the cases in which it is easy it is useless, as the labor would terminate favorably without it; and in the cases in which it would be useful, notably in primiparæ, it is difficult, and sometimes impossible or dangerous. This view was sustained by Guéniot and Charpentier, but, on the other hand, Porak and Doléris gave only a qualified approval, contending that in some cases external version, by which the head had been made to replace the pelvis, had been successfully done, and that it was wise where possible to attempt this substitution, since the mortality of vertex was less than that of breech presentation.

It seemed to be generally admitted that in multiparæ the danger to the child from a pelvic was scarcely greater than from a vertex presentation, while the difficulty in performing version in the case of the primiparæ was in some cases insuperable. Among the dangers of the attempted operation, one emphasized by Pajot was, that the version might be incomplete, so that the shoulder would take the place of the pelvis, and hence peril come to the mother. Again, it was stated that rupture of the uterus, detachment of the placenta, and an unfavorable puerperium, might result from the operation. But the answer to these possible objections is that none of them has been proved, and until they are established by actual experience, they ought not to deter us from the operation.

The special variety of pelvic presentation which usually causes the most delay and difficulty in labor

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is that in which the legs are extended over the chest, the body being rendered inflexible by the rigid limbs, which act as a sort of splint. In such a case the difficulty and danger in version are apparent, and we should be very loath to attempt it, especially if the child was large and the amniotic liquor scanty. Again, the breech may present in a case of narrowed pelvis, a narrowing which is not so great but that a living child may be born by the induction of premature labor; in such a case no attempt would be made to substitute the head, for whatever may be the differences of opinion as to the relative value of the forceps and version in narrowing of the inlet, the induction of premature labor limits the choice to the latter method of delivery.

The question considered by Pajot and his associates can only be settled by large and accurate statistics including cases of pelvic, and those of substituted vertex delivery, giving the fœtal and also the maternal mortality. Meantime, in the management of unchanged pelvic presentation, we should remember the wise words of Charpentier: never hurry, carefully observe the pulsations of the fœtal heart, let nature do all she can, wait if possible for the spontaneous disengagement of the pelvis and the trunk, and do not intervene until the last minute in order to assist the delivery of the arms and the head.

THE YELLOW FEVER INOCULATION INVESTIGATION.

THE Sundry Civil Appropriation Bill for the fiscal year beginning July 1, 1887, contains a clause providing that the President is authorized to use of an unexpended balance now in the Treasury "a sum not exceeding ten thousand dollars for the purpose of investigating the merits of the methods practised in Mexico and Brazil for preventing yellow fever by inoculation."

It will be seen that the President is not limited in any way as to the persons to be employed or the methods to be used in this investigation. He may detail officers from any Department of the Government service, or he may make special appointments from civil life. It is a matter of great interest to the people of the United States, and to the medical profession in particular, that the person or persons selected to make this investigation shall be thoroughly competent, and fitted by special training for the work which is to be done. In the first place, they should be men who have had yellow fever, and are therefore protected as far as possible against a second attack. In the second place, one of them at least must be thoroughly trained in the latest methods of culture and identification of microorganisms.

These two requirements point directly to Dr. Sternberg, of the Army, who is the only man in this country that we know of who possesses such a double qualification. Dr. Sternberg has had yellow fever, is thoroughly familiar with its manifestations, has already investigated it in Havana, and is well known as an accomplished bacteriologist. For these reasons in behalf of the medical profession of the country, we ask that he may be selected for this work and given the necessary assistants and materials.

A part of the investigation must necessarily consist in the careful scrutiny of the evidence that protection has been or can be conferred by such inoculations as those reported by Drs. Freire and Carmona, and this is to a certain extent independent of the question as to whether they have really succeeded in identifying the specific microörganism which produces the disease.

So far as we can now judge, they have not succeeded in doing this, and their inoculations have been made with mixtures of several kinds of bacteria, some of which at all events have the power of producing septic effects. It is, of course, possible that the true yellow fever germ may have been among those inoculated, and it is also possible that some one of the septic bacteria though not the specific cause of yellow fever, may be able to produce a condition of the system which will give immunity, or at least a partial and temporary immunity, against the fever. The investigation of the evidence as to the effects of inoculation must therefore be made whether the specific germ can be identified or not, and this part of the work will require much time, patience, and tact by a man who can speak Spanish well, and is familiar with the subject. Such a man might well be appointed, we think, from civil life, and there are several physicians in the South who possess the requisite qualifications, so that there is more liberty of choice than there is with regard to the bacteriologist. We do not see any special need for more than two persons to conduct this investigation, but the field is certainly too wide for one.

We are very glad that Congress has authorized the inquiry, and look forward with great interest to the results.

THE presidency of the collegiate department of the Long Island College Hospital, Brooklyn, has been accepted by Dr. Joseph C. Hutchison, of that city, that position having recently been made vacant in consequence of the death of Dr. W. H. Dudley, who for many years had been at the head of that institution. The new president was formerly a member of the faculty of the school, and held the chair of surgery at a time when the late Professors Austin Flint and F. H. Hamilton were also identified with the interests of the institution.

THE Pathological Society of Brooklyn was, on February 24th, addressed by Dr. H. B. Baker,

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of Lansing, Mich., on the etiology of pneumonia. Dr. Baker was present by special invitation, and was greeted by a large attendance of the members. His lecture developed his views concerning the influence of weather conditions in the causation of pneumonia and other respiratory diseases, illustration by numerous diagrams being a prominent feature. After a full debate of the subject, a hearty vote of thanks was proffered to the lecturer. A resolution was also adopted expressing regret that the Michigan Board of Health appears to be in jeopardy from detrimental legislation, and asking that the said Board be amply sustained, and that funds be given it for the establishment of a biological laboratory.

As viewed from the side of the public, the removal of Major Moses Veale, the Health Officer of Philadelphia, is a most injudicious act on the part of the newly installed Governor of Pennsylvania. Major Veale has administered the affairs of his office with unusual ability, and there can be no reason why the public should be deprived of his valuable services except a compliance with the inexorable demands of the spoils system of political appointment. It is to be hoped, for the sake of the community, that his successor will prove himself capable, and will strive to maintain the efficiency which characterized the administration of the retiring officer.

PROF. LUDWIG BANDL, who was reported to have died, and whose obituary notice has appeared in a number of journals, is said to be still living. He is, however, suffering from melancholia, and his sudden retirement gave credence to the report of his death.

A NEW medical association was organized in Brooklyn, on February 25th, under the title of the Kings County Medical Association, and officers were elected for the ensuing year, as follows:

President, E. R. Squibb, M.D.; *Vice-President*, Avery Segur, M.D.; *Recording Secretary*, R. M. Wyckoff, M.D.; *Corresponding Secretary*, W. G. Russell, M.D.; *Treasurer*, J. R. Vanderveer, M.D. This Society will be in affiliation with the American Medical Association, and it proposes to give especial prominence to the cultivation of social and professional intercourse among its members.

CREMATION in New York has not progressed as rapidly as its promoters had hoped. The experience of last year shows that less than ninety incinerations were performed at the Newtown crematory, whereas the income from not less than one hundred and fifty would be required to defray the annual outlay. The stockholders of the Society owning the crematory will make good the deficiency by an assessment. The report of the Society explains that, in addition to the unpopularity of their project due to the religious scruples of various denominations, there has been encountered an unexpected obstacle in the position taken by the health authorities of New York City. The latter body have refused to issue permits for incineration on the ground that the laws of the State provide that all dead human bodies shall be disposed of by interment.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, February 8, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. T. M. MARKOE presented a

CASE OF CIRSOID ANEURISM, TREATED BY SIMULTANEOUS LIGATURE OF BOTH OF THE EXTERNAL CAROTIDS,

with the following history: James S., aged twenty, a marine, about five years ago was struck with a club on the left side of the head near the parietal eminence. A small lump remained after the injury, which slowly increased in size, and in the course of two years became a pulsating tumor. He was admitted into the New York Hospital the last of June, 1886, and then presented a large, soft, fluctuating tumor, situated over the left parietal bone, toward which several large and tortuous branches of the temporal artery converged, and into which they manifestly opened. The same condition existed, though to a less degree, on the right side. The occipitals seemed to be but slightly involved. The pulsation was very marked in all parts of this mass of enlarged vessels, notably so in the central enlargement; a thrill was felt on placing the finger upon the vessels, and also a feeble bruit. The entire series of vessels was easily compressible. The patient had no pain, only a sense of discomfort about the head, and when he stooped or made a violent effort, he felt a distressing sense of distention. The same was true if he indulged in drink.

He was very anxious to obtain relief, as the tumor had grown so rapidly as to cover the entire left side of the scalp, and the vessels were beginning to dilate on the opposite side. It was decided to tie both of the external carotids, a procedure warmly advocated by Bruns, of Tübingen, because it seemed as if the circulation through the scalp could thus be controlled most effectually. The operation was performed on July 9th, and the dressings were not disturbed until the 27th, when it was found that the wounds had healed perfectly except at one small point, which was well in a few days. It was found at the time of the operation that the central mass consisted of a large ampulla, with which several dilated arteries communicated. The pulsation ceased after the operation and the dilated vessels gradually disappeared; but the ampulla still remains, although it no longer pulsates. Although the cure in this case is not perfect, ligation of the carotids seems to give the best results. Extirpation of the tumor is another alternative,

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but it is limited to cases in which the mass is circumscribed. It is sometimes successful, but often fatal.

In reply to a question from Dr. Wyeth, he said that the carotids were tied below the lingual arteries so as to control the circulation through the occipitals. There were very few cases in which any operation had been perfectly successful, except those in which extirpation could be accomplished. He recalled an instance in which the late Professor Van Buren had tied in succession every artery that entered the tumor without producing any visible effect upon it. If employed in any early stage of the disease this operation of ligature of both external carotids promises much.

DR. WYETH said that this was the first case that he had seen in which both carotids were tied to cure cirsoid aneurism. Up to within twelve years the external carotid had only been tied about sixty-seven times, but since then the operation has been performed very often, and there has been, so far as he has noticed in the journals, no dangerous secondary hemorrhage in any instance where animal ligatures had been used. The speaker said that he had tied the external carotid five times below the origin of the lingual (on both sides in one instance), and even at the very point of bifurcation.

DR. STIMSON said that there still seemed to be marked pulsation in the vessels; might it not increase?

DR. MARKOE replied that the pulsation was certainly diminishing; it was possible now, he added, either to inject some coagulating fluid, or to excise the entire mass, if it seemed desirable.

DR. STIMSON remarked that in the successful cases which had been reported, the central cavity itself was destroyed; tying the arteries is only a preliminary step in the operation, which alone is rarely sufficient to effect a complete cure.

THE PRESIDENT doubted if it was possible to effect a radical cure of cirsoid aneurisms without encircling the entire tumor. He had produced some benefit by tying the main artery, but the pulsation eventually returned. His last case was one of large pulsating orbital tumor, to cure which he ligated the common carotid artery, when the pulsation nearly disappeared, but gradually recurred. He then dissected out the tumor entire; fifty vessels requiring ligature in spite of the fact that the main artery had previously been tied. When the patient was last seen the pulsation had stopped.

DR. WYETH referred to a case of Mussey's, in which he tied both common carotids, and was even then obliged to dissect out the tumor.

ABSCESS OF THE HEAD OF THE TIBIA; RESECTION OF THE KNEE.

DR. POORE presented a girl, eleven years of age, who had always had some trouble in her knee. About eighteen months before, it became flexed and ankylosed. Last October he excised the joint, and found an abscess in the head of the tibia above the epiphyseal cartilage; this was thoroughly scraped out and drained. The patient recovered rapidly, the wound healing under two dressings. There was slight motion; about one inch shortening. The patella was removed.

In reply to a question from Dr. Markoe, he said that he had never seen cases in which the ligamentous union yielded after a time. After scraping out the abscess-cavity he introduced a drainage tube through the bone. He had drained several joints in this way, and believed that a good deal of bone was thus saved.

DR. LANGE announced that a patient upon whom he had performed the

NEW OPERATION FOR PROLAPSUS ANI,

was unable to be present. He presented a patient from whom he had removed a

SARCOMA OF THE RECTUM

by drawing down the gut and excising it. He had attempted to form a constriction by uniting the muscles in the manner described at the former meeting. The patient had perfect control over her sphincter when her bowels were somewhat constipated, but not when they were loose. She was obliged to wear a napkin, but seldom soiled it.

DR. STIMSON examined the patient at Dr. Lange's request, and stated that he found an orifice admitting the index-finger as far as the second joint; beyond this point there was a firm, cicatricial mass, which it was impossible to pass. When the patient was told to contract her muscles, the contraction of the levatores ani could readily be felt.

DR. WEIR then read a paper entitled

FOUR MONTHS' OPERATIVE WORK AT THE NEW YORK HOSPITAL,

of which the following is an abstract; sundry cases having been of necessity omitted.

From October 7, 1886, to the present time, he has had in his ward 339 patients of all kinds, and 105 operations, a large number of which were of importance. Of these there were 19 done on the head and neck, 53 on the trunk, of which 23 were in the genito-urinary apparatus, and 33 on the extremities. This is a division, which, while not strictly scientific, allows of ready grouping of cases, and on this account is adopted.

The *operations on the head and neck* were principally the following: Two for the relief of *deformity of the nose*. The points of each are worth a brief mention.

INJURIES OF THE NOSE.

C. F. P., aged nineteen, was admitted January 4, 1887, with the statement that fifteen years previously he fell a distance of seven feet, striking his nose, flattening it by apparently crushing in the cartilaginous septum. The nose is now increased in breadth at the lower part and sunken in, and the nasal process of the maxillary bone is unduly prominent. The septum is much thickened for half an inch below the skin, but not deviated. On January 7th, with a fine wood-engraver's chisel, Dr. Weir cut through from without the superior maxillary processes, and forced them inward and toward each other, and held them *in situ* by a needle passed transversely across the nose, the ends of which were prevented from pressing against the skin by pads of iodoform gauze. At the tip of the nose, from within the nares, the thick skin was separated for a considerable distance upward by subcutaneous dissection from the cartilage, and pulled forward, and held by a silver wire clamped at each end with a shot over a little cork plate, so that the broad, flattened under surface of the skin could be brought together.

The upper pin was removed on the fourth day, as some sloughing from pressure was apprehended; this immedi-

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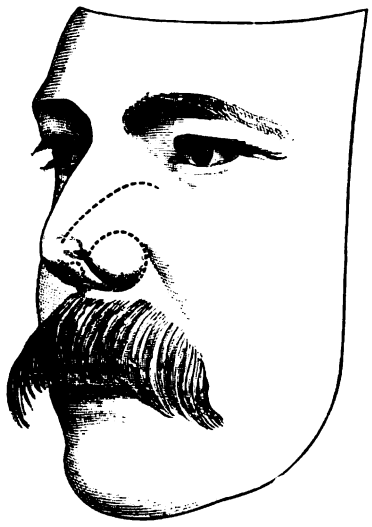
ately ceased. The lower wire was kept in for twenty-four hours longer; no ulceration had taken place under the cork pads. Lateral compresses were kept on for a few days longer. The result was excellent and the patient was submitted for inspection.

The second case consisted in replacing the parts lost by the end of the nose being bitten off in a fight. A portion of the tip and of the ala had been removed so that the nostril was carried upward. This is best shown in the accompanying illustration, in which the



outlines of the flaps made for closing the defect are also seen. The curved flap of skin was severed from its attachments up to just below the inner angle of the eye and drawn downward and fastened by black silk sutures, and the ala separated except at its lower portion and tilted forward and downward. The result was fully satisfactory, though the utilization of a portion of the columna to fill up a slight gap in the edge of the nostril was subsequently necessary.

Beside these external nasal operations, there were two others of more importance, one being

A PECULIAR BONY TUMOR OF THE NOSE,

met with in a young woman of twenty-two, who had had since her tenth year difficulty in breathing through the right nostril. This had lately increased and had been associated with hemicrania of that side. At the orifice of the nostril was seen a fleshy mass which covered a bony resistant mass. Nothing could be passed alongside it. Although no swelling of the cheek existed, it was determined at the operation, after the exposure of the bone by the usual incision from the middle of the lip around the nose, to open the antrum to see if the growth invaded that cavity. This was done with a small gouge; it proved to be free from disease. The bony growth, which apparently consisted of a greatly developed inferior turbinated bone, was removed with forceps, and the operation supposed completed; but it was noticed that the blood collecting in the nose did not run down the throat, and this was found to be due to the posterior portion of the bone shutting off the posterior nares and permitting only a fine probe to be carried into the naso-pharynx. This part of the bone was thereupon removed, when the passage was found to be quite clear. The patient has since been free from all unpleasant symptoms, except from the annoyance of a collection of muco-purulent crusts.

AN INTRABUCCAL DIVISION OF THE INFERIOR MAXILLARY NERVE

was done for a severe neuralgia affecting the right side of the face, but principally the lower teeth, with flashes of pain along the course of the auriculo-temporal nerve. An incision in the mouth was made from the upper to the lower jaw, along the inner edge of the latter. The spine of Spix was exposed, and after being seized with slender but strong forceps just before it enters the dental canal, the nerve was divided by scissors above and below the bite of the forceps. The little scrap removed, however, did not plainly show nerve tissue, so, after several endeavors, a short-curved blunt hook was introduced two or three times, until finally it was passed well back and drawn forward, with a seizure of what was supposed to be nerve. This was divided with scissors, when quite a severe hemorrhage took place, only controlled by rapidly packing the wound with iodoform gauze. The hemorrhage recurred the same evening to the extent of several ounces more, and was checked by a further compress and by binding the jaws tightly together, which forced the compress more firmly against the wound. The gauze was removed piecemeal from the wound, the last being taken away by the tenth day. The patient has been, when last heard from, four months from the time of the operation, entirely free from pain and has gained greatly in flesh.

Whether the hemorrhage came from the inferior dental, as he feared at first, or from the internal maxillary, he could not positively determine, but as he had heard of a similar mishap in an operation much more simply conducted than this, he had been led to think it was from the former vessel. He has performed the operation now three times. In the first case it was readily completed with the removal of a small portion in the grasp of the slender forceps used, and the success was permanent. In the second a good deal of difficulty was met with, until the nerve was finally divided; pain recurred after three months interval.

Of the surgery of the brain, two interesting examples can be given; the first of which is one of

CEREBRAL ABSCESS FOLLOWING AN OLD INJURY.

Patient received an injury of the left frontal region just above the eyebrow, in 1880, by his gun exploding and lodging its breech-pin in his brain. When extracted, at this hospital, the anterior clinoid process of that side could be felt by the finger. A number of bone fragments were removed with some brain substance. No cerebral symptoms followed until four months later, when infrequent epileptic fits showed themselves, but none have occurred during the last two years. He had, last summer, a painful pulsating swelling over the site of the old injury, which passed away under large doses of iodide of potassium and by local blistering. About ten days ago he began to have much pain and headache on the left side of the head over the brow. When sent to the hospital by Dr. Seguin, November 7, 1886, there

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was some œdema of the left upper lid and great sensitiveness over the region of the old cicatrix, and a sense of deep fluctuation was also to be felt; no paralysis of motion or sensation. A V-shaped incision, raising the old scar, was made under ether until an opening in the skull the size of the thumb nail was reached; this was filled with a dense membrane which visibly pulsated. A puncture with a hypodermatic needle revealed pus, and the membrane was accordingly incised and nearly two teaspoonfuls of pus evacuated. The cavity of this abscess reached nearly an inch beyond the skull level. It was at first thought that it might be the original frontal sinus, but its depth and the plainly seen pulsation showed it to be the cranial cavity, though shut off from the brain by a thick layer of old inflammatory material. It was dressed from the bottom with iodoform gauze. During the evacuation of the pus respiration wholly ceased, and only by artificial respiration, lowered head, and whiskey hypodermatically, could it be started again. It was a query whether this was due to the ether or brain interference, or both. This has been noticed by others in abscess of the brain. (See Nancrede, *American Surgical Association Reports*, vol. ii.)

The second case was an unsuccessful attempt at

REMOVAL OF A SARCOMATOUS TUMOR FROM THE BRAIN.

Spurred by the brilliant though unsuccessful result of operative interference in cranial growths by Godlee, in 1884 (*Lancet*, 1884, vol. ii. p. 1090; 1885, vol. i. p. 13), which had been followed by a case reported by Hirschfelder and Morse (*Pacific Medical and Surgical Journal*, April, 1886, p. 210), and by a third and fourth one by Horsley ("Brain Surgery," *British Medical Journal*, October 9, 1886. Four cases given, two for tumor. Results satisfactory), whose paper, rich in suggestions, was received too late to be of use in the case to be immediately given, surgeons will undoubtedly be led to widen their domain, and exploratory operations in this region of the body will soon become numerous. The history of an unsuccessful case will, however, serve an important purpose, and it is now intentionally brought forward to illustrate strongly the difficulties that surround the subject, not only to the surgeon but to the neurologist who guides the knife.

Mary R., aged twenty-six, was admitted into the hospital, September 16, 1886, with the following history. Has had four operations in this hospital for sarcoma of the neck, the first two years, the last six months ago. In this last operation the left brachial plexus was freely exposed and patient afterward suffered from paralysis of the left upper extremity, from which she has only partially recovered. For two months or more she has been annoyed by precipitate micturition and defecation. Six weeks ago she first noticed cramps in the calf of the left leg which usually occurred at night and prevented her straightening it. At about the same time she noticed that the left knee frequently gave way under her while she was standing, and once or more she fell from this sudden giving way of the left leg. During the last week she has noticed occasional clonic spasms in the left lower extremity. During the past six weeks she has had frequent cramped feelings in the left hand and also numbness, and in last two weeks has had cramps and numbness in the *right* hand. For the past three weeks she has suffered intensely from frontal headache, generally on the right side, and always worse on walking. Besides this she often feels as if her head were being hammered.

Examination.—No tenderness on any part of scalp or over either supraorbital nerve. No paresis of any muscle supplied by a cranial nerve. Right hand perhaps a trifle weak, but the old paralysis of the left hand prevents any comparative test. She has paralysis of the left sympathetic as shown by narrowing of left palpebral fissure (from sinking of the eyeball) and contraction of pupil. Left biceps, triceps, and deltoid are paralyzed, and there is paresis of left lower extremity below the knee. Left patella reflex exaggerated. Ophthalmoscopic examination shows slight left optic neuritis, the outline of optic disk at exit of large bloodvessels being indistinct.

The paralysis of the left leg slowly deepened, though she would at times have twitching of the right side; and while waiting further developments she, on Oct. 11, became rapidly stupid, and on consultation with Dr. Amidon, who had had the case under observation prior to her coming in the hospital, an operation was advised and performed under his directions.

Operation.—The fissure of Rolando being previously marked out and the tumor located at upper limit of this line one inch from median line by Dr. Amidon, who had kindly seen the patient and advised the operation (scalp being shaved at this point), a crucial incision was made with long limb of cross just in front of and parallel with fissure. Scalp dissected up and with large trephine a button of bone removed from a spot one and a half inches to right of median line. This opening was enlarged by double gouge forceps to a size one and a half by one inch. Dura mater was found to be very tense and bulging. A crucial incision was made through this membrane, whereupon the deeply congested brain substance protruded into the wound. Nothing was felt by the finger, and a needle carried in several directions to varying depths failed to encounter resistance. As the brain projected beyond the skull level, a piece of it as large as half a hen's egg was cut off, and reserved for microscopical examination. Its substance was deeply pigmented and very vascular. Bleeding was quite profuse, and was checked by pressure and Paquelin's cautery lightly applied. The flaps of dura mater were laid over the divided brain and a strip of iodoform gauze over this, one end of which was carried out the posterior angle of the wound. The scalp was sutured closely up to this point and bichloride gauze dressings applied. The iodoform gauze was drawn out forty-eight hours later. Prompt healing of wound occurred, but within six days bulging took place through the cranial opening under the healed scalp and gradually increased till the hernia was the size of a hen's egg.

No unfavorable reaction followed the operation. The following signs of improvement were observed and put down to the lessened brain tension; viz., the headache, which disappeared immediately and did not recur. The spasms of both limbs also ceased, and a temporary improvement in the damaged muscular power of the left side was observed. The character of the removed piece suggested from a gross appearance the possibility that it might be infiltrated with soft sarcomatous growth, but the microscope showed nothing abnormal. In about three weeks after the operation decided signs of

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right-sided analgesia and paresis showed themselves more plainly and the same deepened on the left side. It was evident that the neoplasm, or a second one, was situated at the upper portion of the cord or in or near the medulla. The patient gradually became more paralyzed and died December 25th, nearly two and a half months after the operation. The report of the autopsy as made by Drs. Amidon and Vought is appended, with the description, by Dr. Peabody, of the tumor found.

Autopsy.—The hernia cerebri so prominent during life was entirely collapsed. On removing the scalp it was necessary to split some connective tissue growth between scalp proper and the more intimate covering of the hernia. There were slight adhesions around the trephine opening between the dura and pia. On removal of the calvarium considerable apparently disorganized cerebral substance bulged from site of operation. Bloodvessels of pia and pia itself all over the brain normal.

On transverse section through both hemispheres nothing pathological was found except a slight diffuse hardening (probably inflammation) in the centrum ovale underlying the site of operation.

The cerebral ventricles were normal. On examining the base of the brain there was seen a grayish, translucent tumor springing from the under surface of the left lobe of the cerebellum, exerting much pressure on the underlying medulla, which was much crowded to the right and forward. The pressure was exerted on the medulla below the calamus. Medulla at this point much flattened. On dissection the nervous substance of the medulla proved to be entirely uninvaded by the growth, while the connection with the cerebellum was extremely intimate. An incision through the antrum of the left cerebellar lobe showed no diffuse infiltration of that body. The fourth ventricle was invaded by the growth, although apparently removed from pressure by the same. Starting from the cerebellum as described, the growth extended down the left lateral posterior region of the spinal canal, within the dura and apparently outside the pia for a distance of at least ten centimetres, the cord, of course, being crowded much to the right and forward.

Tumor grayish, translucent, and apparently non-vascular and non-inflammatory throughout.

Short segments of three spinal nerves were removed from the left side of neck, probably the fourth, fifth, and sixth. They were found to be normal.

Small subcutaneous tumor (fibrous) taken from back, little below right scapula.

Tumor of cerebellum and cord, on section, proved to be an ordinary spindle-celled sarcoma with many round cells. It was not very vascular, and the stroma was not abundant. Tumor had no connection with cerebellum, it having apparently originated in the pia.

An additional case of supposed tumor in the cerebellum, now in the ward, points out the diagnostic difficulty of such cases, as the examination of four distinguished neurologists assigned different cerebral localities to the growth.

On this, and all points, in fact, connected with this subject, the admirable collection of 100 cases of cerebral tumors with their analysis, by Dr. W. Hale White, lately published in *Guy's Hospital Reports* (vol. xxv. series 3, 1885–1886), will be of great service to the investigator. Of the tubercular tumors, 45 in number, more than half of them occurred in children under ten, and when in adults they usually had tubercular disease elsewhere; like the carcinomatous tumors, 5 in number and all multiple and secondary, these are unfit for surgical interference. Out of the 24 gliomata and 10 sarcomata (cysts being only 4 in number and too rare for consideration), which alone offer a reason for surgical interference, there were only 4 cases that could have been removed with any certainty, and 2 of these were in the cerebellum, and were gliomata. Only 1 of the 10 sarcomata was removable. Aside from the situation often precluding the operation, the frequent occurrence of infiltration of a sarcomatous growth will have the same effect. This existed in the case reported by Hirschfelder, where only a portion of the neoplasm could be taken away, the patient dying from suppurative encephalitis eight days later. White's other cases were: gummy tumors, 5; gliosarcoma, 2; lymphoma, 1; myxoma, 1; doubtful, 3.

Taking into consideration the question whether these tumors could be, during life, localized sufficiently to warrant surgical attack, White found that, from this clinical standpoint, 3 tubercular tumors might have been removed, and that 4 gliomata, 1 sarcoma, 2 cysts, 1 myxoma, and 2 of the 3 doubtful cases, or, in other words, about ten per cent of his collection, might have been operated on, *provided* that a correct diagnosis could have been made, a condition which is sadly nullified by his just statement that the best diagnosticians so frequently make mistakes that a certain number of cases suitable for operation might be failures because the position of the growth will not be exactly made out. For further inquiries concerning this interesting though somewhat obscure and difficult subject, reference should be made to this article *in extenso*.

For the special points in the operative technique, the best that has been given yet is by Horsley, briefly summed up as follows: In addition to the strict antisepsis, he makes, after an oval scalp wound, a very large cranial opening, using trephines two inches in diameter, and replacing the bone when possible; the dura mater is cut nearly round, and turned back like a large flap, and in incising the brain the cuts should be vertical and directed into the corona radiata to avoid damage. Hemorrhage should be checked by pressure; drainage of the wound is also urged.

Stress is laid by him on the immediate bulging out of the brain as indicative of a tumor; it was present in all three of his cases and in my own, but is not met with, he says, in healthy animals on whom he has experimentally tested this. This is, therefore, a symptom of intracranial pressure of high importance.

Of the operations on the neck there was a rather pleasing outcome of an intractable affection shown in a case in which a novelty was resorted to in the

EXTIRPATION OF A SUBHYOID BURSA,

which had existed for fifteen years, in a man of twenty-two, and which had attained the size of a small egg. It had been tapped and injected with tr. iodine four months previously at another hospital. Appreciating the difficulty of dissecting out satisfactorily these troublesome thin-walled cysts, he emptied it with a

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trocar canula and injected into it melted paraffine (which liquefies at a point much below 212°), and subsequently cooled it with a small bag of ice. The whole procedure did not occupy five minutes, and by its aid Dr. Weir was enabled with great ease, after exposing it by section through the skin and thyro-hyoid muscle, to remove the entire sac, even up to its attachment at the posterior border of the hyoid bone, which part would undoubtedly have escaped his dissection had the cyst been left flaccid instead of being rendered a hard and tense mass. This method has in other instances served him well, and is to be commended as avoiding the persistence of the fistula which so often results from this bursal inflammation.

In

MAMMARY AMPUTATIONS FOR CANCER

the custom is adhered to of removing not only the entire gland, but also all the axillary contents, even though no enlarged glands are to be felt through the skin or even after the axilla is opened. In doing this the directions first given by Bickersteth, of Liverpool, have been followed by carrying the incision well onto the arm on a level with the insertion of the pectoralis major, and then tearing or cutting through the thin layer of fascia there present, when, with the aid of blunt scissors or the finger-nail, the axillary vein can be isolated in nearly its whole extent, especially if a broad retractor holds up the pectoral muscle. If it cannot be so exposed, and the need exists by reason of glandular growths, the muscles and the pectoralis minor are without hesitation divided. After the vein has been duly cleared, the fatty mass in the axilla is easily peeled away from the chest wall, any veins of size being tied before being divided. The cavity thus made occasionally needs from its extension toward the scapular angles to have the drainage opening for the axilla made well below the line of the incision.

More important, because less known, is the fact that there is frequenty found, beside the infected glands near the axillary vein, an enlargement of a lymph vessel with several minute glands, which run under the pectoralis minor in a line toward the sterno-clavicular articulation. He had so often found them since his attention was accidentally called, a few years since, to their presence, that he never failed to hunt for them, and many times to find them.

HERNIA

Six cases of hernia, two strangulated hernia, two irreducible, and two reducible, but all inguinal, were treated by the radical operation of tying off the sac and sewing up the ring by Czerny's method in one case, and in five others by tucking up the sac and sewing up the canal and ring, as has been suggested by Macewen. This latter operation has been simplified (see a paper on "Reducible and Irreducible Hernia," by R. F. Weir, read before the State Medical Society Feb. 3, 1887, *Medical Record*, March 5, 1887) by exposing the external abdominal ring and then pulling apart the tissues over the sac with forceps until the latter is reached, when it can be readily lifted out of its bed with much less disturbance and more certainty than if reached first lower down. Less chance of suppuration also occurs from the slight cellular disturbance thus made. In one case a concealed atrophied testicle was removed, and in another case of congenital hernia the sac was cut off and a roof thus made to the tunica vaginalis. Whenever omentum is found in a hernia, whether reducible or irreducible, it is carefully tied with multiple and a final encircling silk ligature. Where omental adhesions plugging the internal ring are met with, they are detached with the finger so as to allow the omental stump to drop back into the abdominal cavity.

His individual preference, from a necessarily small experience with it, is for Macewen's operation, as it accomplishes better not only the closure of the peritoneal funnel at the internal ring, but also effects more positively the sealing or narrowing of the inguinal canal. The success of the radical operation as determined by large figures, is about sixty per cent., and from the interannular injection of Heaton, of which one case is reported, about thirty per cent. of cures can be expected in inguinal herniæ of small size and with a yet existing oblique canal. Chromicized catgut is used in the radical operation for sewing up the canal and ring in preference to silk or wire—and among the list is a case where eight months afterward a silk ligature caused an abscess and fecal fistula, which latter promptly closed after the withdrawal of the offending foreign material. He has practised for over two years the healing of the wound by granulation, at least that part of it immediately over the external abdominal ring, as this affords, to his mind, an additional barrier to the relapse of the hernia.

On and about the rectum ten operations have been performed. Three for ischio-rectal abscesses of unusual size, which accounts for their being carried in a report where abscesses and minor operations have been omitted, save where some point of interest could be elicited. Such an instance is present in the four cases of

FISTULA IN ANO

that were divided in the ordinary way. He had had eight cases in which this affection was treated by Jenks's ("New Method of Operating for Fistula in Ano," *Trans. Am. Gynecolog. Soc.*, p. 136, 1883) method of cutting out the fistula and sewing up the fresh surfaces from the bowel to the original skin opening. In three of these eight, the fistulas were not deep and were of moderate extent, and they did well; in the others, five in number, the fistulas had a deep internal orifice, their tracts were either larger or deeper, and in two cases had diverticula, so that the dissection of the suppurating canal itself was difficult, and also the final suturing, particularly in respect to the closure of the bowel end of the incision. And after all this had been done, failure was met with in four out of the five cases. As the last trial was as unfortunate as the first, he could not lay it all to inexperience in the operation, and hence his faith in the method had much lessened.

In the four cases of

HEMORRHOIDS

he had likewise returned to the so-called method of Allingham—after a trial in five cases with Whitehead's ("New Method of Treating Hemorrhoids," *Brit. Med. Journ.*, Feb. 4, 1882) plan of cutting off the pile, tying the main vessels and then sewing together the divided mucous membranes. There was in nearly every one of these cases so much troublesome oozing from the small veins of the divided tissues, which had been cut as in

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Allingham's operation, that the little operation was rendered unduly prolonged and annoying, and the result did not show any rapidity in the cure, nor any diminution in the after-pain and other discomfort often encountered in operations for hemorrhoids. He had also, in six cases, tried crushing off the pile after partial section, as has been practised by Mr. Allingham with a fairly satisfactory result, but has had at all times the feeling that the patient would be safer from the risk of hemorrhage with a tied vessel, and not enough advantage has accrued so far to warrant him in incurring further this possible danger.

Two cases of

STRICTURE OF THE RECTUM

have been operated upon.

One case was in a woman, and the stricture, a moderately ulcerated and rather narrow fibrous one, admitting only the little finger, and apparently due to parturient causes, was situated about one and a half to two inches from the anus. Instead of resorting to Verneuil's proctotomy, or its modification by the use of the knife in lieu of the galvanic or wire écrasuer, he put into service a plan which he has now used four times in the last three or four years with excellent results. He had found in practising eight times the free posterior incision of the rectal stricture with its conjoined incision reaching back to the coccyx, that the subsequent healing of the external wound was very tedious, frequently occupying more than a year, and was also associated with more or less loss of sphincter power. So, as before stated, he has changed this cut, particularly in strictures situated within two and a half inches from the anus, to one made posteriorly to the coccyx or sacrum, after stretching the anus, without dividing the external sphincter. To avoid the collection and retention of secretion in this wound pouch, a puncture with a knife is made from the point of the coccyx to the wound in the bowel, and through this is carried a drainage tube. In other words, a traumatic fistula in ano is made. The wound in the bowel is then packed with iodoform sticky gauze, and an antiseptic dressing applied over the anus. The bowels are kept quiet for several days, and if the temperature shows that all is going well, the drainage tube is withdrawn on the third or fourth day. In every one of the instances in which this plan has been tried the tube opening has promptly closed up, so that no fear of a permanent establishment of a fistula need, he thinks, be entertained. The use of a large bulbous or rubber bougie, is subsequently kept up at regular intervals, according to one's judgment.

The result as to relapse by this plan have been, as to the stricture, equally satisfactory with the major operation, and more so as to rapidity of cure. For higher strictures, the open method is wiser, as it admits of the knowledge and repair of every damage that may be possibly done to the peritoneum.

One case of

SPINA BIFIDA

was treated by injection in a child, eight months old, in whom the tumor, the size of a large orange, was situated on the upper part of the sacrum. Cutaneous outgrowths rose up on its base nearly to its vertex, where they were lost in a thin, pellucid cyst-wall. Puncture had been tried some weeks previously, with aggravation of the existing paralysis of the legs. The child was in robust health. After withdrawing, by a needle thrust through the adjacent sound skin into the tumor, about one drachm of a clear, colorless fluid (which was subsequently found to be sugarless), a similar quantity of Morton's fluid was slowly thrown in. This fluid consists of 10 grs. of iodine, with 30 grs. of iodide of potassium, dissolved in ℥j of glycerine. No special reaction followed its use, but the swelling a month later was decidedly less in size, though it is probable that a repetition of the injection will be necessary. In the *Transactions of the Clinical Society* for 1884 and 1885, 50 cases are given of this treatment, with 41 successes, as opposed to the use of the simple tincture of iodine, of 20 cases and 5 deaths.

In the genito-urinary subdivision of the operations on the trunk there have been 24 cases. Among these there is one of

VARICOCELE

treated by a method (*Medical Record*, March 20, 1886) which he had elsewhere seen suggested, and which was as suitable for those of large size—that is, by ablation of the scrotum, and the subsequent ligation of the exposed and easily attacked veins, care being taken to leave untied the packet of veins accompanying the vas deferens.

Beside this, two cases of

DOUBLE HYDROCELE

were treated by Volkmann's method, as they were considered too large to be remedied by the carbolic acid injection of Levis, which is yet considered the best treatment for hydroceles of ordinary size, or even of large size, if a preliminary tapping be resorted to, to diminish them.

In all the

URETHRAL OPERATIONS

it is the custom to smear the hair of the pubis and perineum with iodoformed oil, gr. iv ad ℥ij of fluid cosmoline, and to inject a small syringeful of the same into the urethra before any instrument is introduced into the canal. All these latter are greased with iodoformed vaseline, ℥j ad ℥j (which keeps freer from chemical change than does the oil).

URETHROTOMY.

For the division of deep and even tight anterior strictures reliance is placed on Maisonneuve's urethrotome, whose blade cutting upward he has had enlarged to one of 11 mm. in breadth, but even with this a cut made in the usual manner can enlarge the canal only to about the size of a No. 26 French sound, but by twisting the handle of the cutting blade as it comes forward from beyond the already divided stricture a second cut may be made in the roof of the urethra. By this means enlargement to 32 or 34 of the French scale, and sometimes more, can be obtained. If any anterior obstructions of large size are met with, they are cleared away by Otis's urethrotome. After all the cutting has been done, including the division of the meatus urinarius, the urine is drawn, and the bladder washed out several times with a 1 to 10,000 bichloride solution, and the urethra is also flushed generously with the same solution as the catheter is withdrawn. The penis, if any anterior coarctations have been divided, is snugly bandaged, and the

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patient given, two or three times for the first twenty-four hours, ⅛ gr. morphine, with 3 to 5 ♏ tr. aconit. rad. No instrument is passed until four to seven days have elapsed, and not then if any temperature elevation should exist. By this means urethral fever has practically been abolished, and, for this reason, the plan of action has been detailed at this length. Before leaving the hospital, every patient is provided with a proper sound, and taught to use it.

External urethrotomy was done in a case of recently received

RUPTURE OF THE URETHRA

from falling astride a step-ladder, cutting into a mass of extravasated blood, in which the ends of the membranous urethra were found to be torn across and jagged. The proximal end of the urethra was more clearly made out by the prolonged use of a douche of hot water, which stopped the oozing of fresh blood, and also washed away the obscuring clots, etc., and left the urethra to stand out white and sharply defined. This expedient has proved of service in several other cases in which difficulty till then had existed in distinguishing the position of the urethra. The prompt employment of incision for a ruptured urethra is still recognized as one of the decided modern improvements in surgery. The patient did well.

Of more interest was a case of

SUPRAPUBIC CYSTOTOMY FOR SUPPOSED TUMOR,

which operation was done in a man of twenty-four, who had been passing bloody urine for six months previously with moderate pain and increased frequency. No enlargement of prostate or renal tenderness detected. A searcher in the bladder failed to touch a calculus. No renal elements were found on microscopically examining the urine, nor was any portion of a tumor cast off, though repeated search was made among the many small clots passed. The pain in the bladder on sudden motion became more marked and he was, early in December last, placed under ether and the bladder thoroughly examined by the bimanual method, also by sound and by lithotrite, and also by Bigelow's aspirator. No calculus was found nor evidence of tumor obtained. One mass removed showed a small collection of shapeless epithelial cells, but no stroma. It was decided to explore the bladder by the suprapubic cut. This was done December 23d, after the rectum had been distended with a bag holding eight ounces of water (see remarks on this point in THE MEDICAL NEWS, of December 4, 1886), and then the bladder filled with first six and a half ounces of 1 : 100 carbolic acid solution; but as no distinct elevation of the bladder above the pubes could be felt, a further three and a half ounces were slowly introduced, when the top of the bladder was lifted one and a half inches above the bone. The bladder was reached by the usual incision and opened with but little hemorrhage. The exploring finger did not feel any calculus or any tumor, as was expected. Inspection of the bladder was rendered difficult by the great rigidity of the strongly developed recti muscles, acting as they did more than usual, owing to the difficulty in maintaining perfect ether anæsthesia. By blunt retractors introduced into the bladder wound and by raising the heels of the patient over an attendant's shoulders, as suggested by Trendelenburg, Dr. Weir was enabled to secure, with the additional aid of a small portable electric ligh , a very good view of the bladder: only an intensely congested and easily bleeding mucous membrane was seen. No attempt was made to sew up the wound, which was packed lightly with sticky iodoform gauze after a drainage tube had been inserted, and the patient kept turned on alternate sides for three days, when the tube was also removed.

No reaction followed the operation, but the bloody urine continued to be passed, and two weeks later, the wound still admitting a finger, the patient was again etherized with the idea of isolating the mouth of the ureters and thus ascertain whether the hemorrhage came from the kidneys. This was soon proved to be a difficult affair; the use of various endoscopic tubes and mirrors and even a long but narrow glass speculum was inefficacious in obtaining the desired view, and the insertion and dilatation of Peterson's rectal bag with seven and a half ounces of water, while it brought the base of the bladder one inch nearer the surface and closer to the pubis, did not serve to permit the recognition of the orifices of the ureters. The hindrance was, as before, mainly due to the difficulty of overcoming by ether the strong resistance of the well-developed recti muscles. It was, however, seen that the lower part of the bladder was studded over with a number of elevations the size of hempseed, which bled freely when rubbed by an instrument. Three weeks later the suprapubic opening closed, and patient's urine is becoming less and less bloody, but the solution of the case cannot yet be fairly claimed to have been made. He still remains under observation.

(*To be concluded.*)

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, February 3, 1887.

THE PRESIDENT, THOMAS M. DRYSDALE, M.D., IN THE CHAIR.

DR. H. A. KELLY called the attention of the Society to an external direct method of

MEASURING THE CONJUGATA VERA,

which he had found of extreme value in a large number of non-pregnant gynecological cases which had come to him complaining of difficulties since a previous confinement.

A short vagina, or cellulitis, or cicatricial contractions, often prevent the finger in the vagina from reaching the promontory. In a case he had examined in the morning, the short vagina prevented the vaginal finger reaching the promontory while the outside hand rested upon it, and on pressing deeper felt the vaginal fingers fully three centimetres below. This case was measured by the outside hand and determined normal. Another case had a rachitic pelvis 8½ cm. conjugate. She had borne ten children at term through difficult labors, but without assistance.

The method is simple, avoids a vaginal examination in the virgin, is invaluable in many cases retrospectively and prognostically. The inaccuracy of the external conjugate is well known. This, of course, is of no

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use in the most important class of cases, the advanced pregnant, but it does often afford invaluable facts in other cases.

The method is to press deeply with the finger tips of the extended hand until the promontory of the sacrum is felt, then by slipping the fingers up and down over this until the relations are well appreciated, let the fingers rest vertically above the angle and at the same time mark on the palm with the finger of the other hand the position of the posterior surface of the symphysis, also vertically below. This measurement from the mark thus made to the tip of the finger is the conjugata vera thus directly measured.

DR. MONTGOMERY, in a paper entitled

TRACHEOTOMY AND INTUBATION IN DIPHTHERIA,

urged the importance of early operation. The symptom which should indicate the necessity for operation was depression of the substernal region during inspiration. This symptom indicates the inefficient entrance of air to fill the lungs, and the diaphragm becomes a fixed point depressing the soft tissues. The longer this condition continues the greater the danger of collapse of portions of lung tissue. The large mortality after tracheotomy and intubation is due to the postponement of operative interference in the majority of cases, until these changes have occurred. This assertion is verified by his own experience in tracheotomy. In his first ten cases, in all but one of which the operation was done as a last resort, none recovered. In the next seven cases in which, excepting two, it was done early, five recovered. The two fatal cases were not considered hopeful at the time of operation. His eighteenth case died before the trachea was opened. Of the last ten, five recovered. Twenty-eight cases with ten recoveries.

He has practised intubation in thirteen cases with six recoveries. All but one of these cases were seen in consultation, and some of them were in a dying condition when intubation was practised. In no case did death occur in less than twenty-four hours, and in all the relief from the dyspnœa was prompt and permanent. The youngest child was eighteen months of age, and died on the fifth day of convulsions. The youngest child to recover was aged two years. In one case of recovery tracheotomy was performed the day following the intubation. A smaller size tube than suited for its age had been used; the dyspnœa recurring and the tube absent from the glottis, it was feared that it had been passed into the trachea. It was found that the tube was coughed up and swallowed, and passed per anum two days later. Of course, in this case, little can be claimed for intubation.

He prefers intubation to tracheotomy, and believes that the former will supplant the necessity of doing the latter The advantages are: It is free from danger, it requires no cutting or anæsthetic. The after-treatment does not require skilled attention, as the air is moistened and warmed by the natural passages before entering the trachea; there is, therefore, no mucus accumulating in the tube, and not the same danger of secondary inflammatory lesions. As the tube does not fill up the calibre of the trachea, membrane is coughed up around instead of through it, and thus the danger of blocking is avoided.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 28, 1887.

THE PRESIDENT, J. C. CAMERON, M.D., IN THE CHAIR.

MYXŒDEMA COMING ON DURING THE COURSE OF CHRONIC TETANY.

DR. STEWART exhibited a man, aged forty-one years, who had suffered during the past six years from tetany. The contractions, which affect the muscles of the hands and face principally, usually come on monthly, and last from two to six days. During the past year, however, the tetanic symptoms have not been so severe or so frequent as formerly. This change, which was at first attributed to the treatment employed (galvanism and perchloride of mercury), is more likely due to a change in the course of the disease, possibly to a more advanced stage.

About eighteen months ago it was noticed that his speech was slow. He complained that it was difficult for him to answer a question at once. Œdema of the extremities and face is now apparent; it is of a solid character, not pitting on pressure. He complains of general numbness. The hands have the broad, spade-like shape so constant a feature of myxœdema. There is no thyroid gland tissue to be made out. The skin is dry and harsh. His temperature is almost constantly subnormal.

The symptoms at present may be summarized as follows: 1, profound anæmia; 2, slowness in thinking; 3, slowness in speaking; 4, slowness in moving; 5, solid œdema; 6, atrophy of the thyroid; 7, subnormal temperature; 8, harsh and dry skin.

Before the development of the mucinoid state, and during the tetanic period, there was marked increase in the electric irritability of the nerves to galvanism; 0.25 of a milliampère was sufficient to bring about contraction of the muscles supplied by the facial. It now takes 1.25 of a milliampère to induce a similar contraction; the KSZ = AOZ. With the exception of a slightly diminished quantity of urea, the urine is normal. No relative increase in the number of leucocytes, no diminution of red, no enlargement of spleen or lymphatic glands.

The reader of the paper remarked that this, so far as he knew, was the first recorded case of myxœdema following or coming on during tetany. Dr. W. Ord, about a year ago, read the details of a case of myxœdema before the Medical Society of London, where there was persistent flexion of the arms. This condition is, however, entirely distinct from typical tetany.

The case under observation is not unlike the condition seen in the monkeys from which Mr. Victor Horsley removed the thyroid. When they lived several weeks the preliminary tetany stage gave place to a mucinoid condition (myxœdema). Horsley and others believe that myxœdema, both surgical and idiopathic, is due to removal or disappearance of the thyroid. The ultimate cause of tetany is attempted to be explained in the same way. If this is so, why does not removal of the thyroid always bring on myxœdema? It is only in a very small percentage of the complete removals that it sets in. In Billroth's forty cases of complete extirpation there was not a single case. The cause is more likely to be found in injury or damage to the sympathetic. The atrophy

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of the thyroid gland is, according to this view, a symptom and not the cause of myxœdema.

DR. T. WESLEY MILLS said that to believe that any gland or other organ existed to prevent the formation of a substance, whether normal or abnormal, is inconsistent with general physiological principles. True, the removal of certain glands, as the testicles in the young, arrested development, both physical and psychical. In the adult dog such removal is followed by obesity, which can be largely accounted for by the inactivity of the animal, associated with the psychical shrinkage, the curtailment in the number and variety of the afferent impulses reaching the nerve-centres. It has been asserted that after the removal of the thyroid in children there is stunted development, especially intellectually. Dr. Mills thought it likely that metabolic changes follow the removal of the thyroid, owing to the influence on the nervous system, for there is a loss of balance; all healthful life implies balance of function. It is not yet clear how the balance is destroyed by removal of the thyroid, but we are on the way to knowledge, for we have learned, experimentally, that this organ is not a blood-former. If, as has been suggested, the changes following experimental or surgical removal are due to injury of the sympathetic, one would expect to observe vasomotor symptoms. This has not been the case, though such an objection must not be too strongly insisted upon, for though dilatation follows section of the cervical sympathetic, it is not permanent, and, if transient, may be overlooked.

DR. RICHARD MACDONNELL said that the patient had been under his care in the Montreal General Hospital for some time, during which he had been carefully observed, and no symptoms of tetany were ever present; but he understood Dr. Stewart to say that he had himself seen the man in a tetanic fit. He thought the case a doubtful one of myxœdema, and would not be prepared to say that the thyroid gland was absent; in many it is difficult sometimes to make out the gland by external manipulation.

DR. SHEPHERD could not agree with Dr. Stewart's suggestion that the reason myxœdema or cachexia strumipriva follows excision of the thyroid is because of the disturbance damage done to the sympathetic system, as this affection, so far as he knew, never follows the extensive operations in the neck (as removal of chains of enlarged glands and tumors), when the sympathetic trunk is quite as much interfered with as in the operation of removal of the thyroid. Those cases which do not become myxœdematous after removal of the thyroid, are now supposed to be cases of incomplete removal, or where abnormal outlying portions of the gland have been left behind.

NEWS ITEMS.

PARIS.

(From our Special Correspondent.)

PERMANENT SUTURE OF BONES.—DR. F. GUERMONPREZ, of Lille, has been recently advocating the permanent suture of bones. Steel threads he finds are durable and supple, but not antiseptic; silver and platina threads have the same qualities as steel threads, and are moreover antiseptic. Threads made with fibres of vegetable origin cannot be employed for permanent ligatures. Among the threads formed from animal substance he finds that catgut is inefficient in osseous suture. Silk is badly tolerated by osseous tissue. Thread made of whale's tendon is formed of fibres wound round each other as the best ropes and cables are made. If silkworm gut is macerated during six weeks in carbolic solution (2 to 5 per cent.) its antiseptic property is insured.

DR. P. BIGO, of Caudry, communicated the following details concerning osseous suture to the *Société de médecine de Strasbourg*. A child, six and a half years old, fell from a height of thirty-three feet on the 13th of July, 1885. There was cerebral contusion, and the child was unconscious during ten days; the two bones of the left forearm were fractured, close to their lower extremity; there was also compound fracture of the two bones of the right forearm. Notwithstanding treatment, a pseudarthrosis of the right arm remained.

On January 13, 1886, MM. Guermonprez and Duret performed a resection. Four days after the operation the drain of the ulnar wound was removed; that of the radial wound was reduced to half its length.

On the eleventh day all the stitches made by the cutaneous suture, and the remaining portion of the drain, were removed. Reunion was obtained without difficulty.

On the sixty-sixth day consolidation was complete; the actions of pronation and supination were effected, the child could write, and raise objects, by holding the limb in a horizontal direction.

There was no induration, nor any callus, at the level of the osseous sutures, which had been effected with silkworm gut. The limb was freed from every apparatus and dressing.

M. DURET in treating a club-foot recently practised cuneiform resection of parts of the cuboid and the neighboring bones. Seven suture stitches with single threads of silkworm gut were inserted, and adjustment was satisfactorily effected. The reunion of the skin was obtained without difficulty, and the osseous tissue tolerated the silkworm gut. This material is, therefore, preferable to others in permanent bone sutures. It is tolerated as well as catgut and the best metallic threads; and, if used double, is quite as solid.

MEDICAL PRACTICE IN CHINA.—From a recent report of St. Luke's Hospital, at Shanghai, we learn the following regarding the diseases of the Chinese: As might be inferred, the most common forms of disease are malarial, and nearly every disease is more or less modified by this prevailing influence. Intermittent, remittent, and typho-malarial fevers are very common. Both adults and children suffering with enlarged spleen are encountered every day. There is a very remarkable predominance of the *quartan* type of intermittent fever, just the reverse of what occurs in malarious districts in the United States. Again, the paroxysm of fever is most likely to come on in the afternoon, or at night, thus differing from what we see at home. Next in frequency are diarrhœa, dysentery, and liver troubles—abscess of the liver is not uncommon. Nearly all the zymotic diseases flourish. Smallpox is spread every winter by the custom of inoculation. This is done by putting the variolous matter on a rag and inserting it up one nostril. No care is taken to isolate patients suffering from this

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disease. Measles are very common, and it is a well-known fact that one attack of measles here is no protection from the disease at home. The same statement has been made about whooping-cough; this, however, lacks confirmation. Typhoid fever claims many victims—especially in the autumn. Typhus occurs from time to time. A few cases of Asiatic cholera occur among the Chinese every year. Occasionally the disease takes on an epidemic form, then hundreds and thousands are swept away. The general idea amongst the foreign doctors here seems to be that water is the most common vehicle for the spread of this disease. The idea that great care in the preparation of food and drink is the best prevention of an attack of cholera, seems to be borne out by the comparative freedom from cholera enjoyed by foreigners, though they live here subject to the same conditions as to climate and surroundings as the native population. The few foreigners attacked are usually sailors or others who are exposed to the evil effects of bad food and impure water. A striking example of what can be done in the way of prevention in this disease came under the observation of the writer. During the height of the worst cholera season which has been seen in Shanghai for the last twenty-five years, a man-of-war arrived in port with orders to remain here. The commanding officer and the senior surgeon had the good sense to work in unison for protection against the spread of the disease. No one was allowed on shore except on official business, the boats' crews were not allowed to land, no one slept on shore. Only distilled water was used, no fruit or vegetables were allowed on board, Officers and men lived on the ship's stores. This vessel remained six weeks in port and finally went to sea. Not one case of cholera appeared on board. This ship was moored right in front of the foreign settlement. She was surrounded by other men-of-war. The writer saw burial parties leaving early every morning from the other ships and knew that their crews were decimated by the cholera. Seven hundred foreigners, mostly from the shipping, fell victims to the cholera during this season. None of the other ships took the precautions observed by the ship I speak of. These are facts: they can speak for themselves. Owing to the coarse, badly prepared food of the poorer Chinese, consisting for the most part of salted fish, or stale bacon, mouldy beans, pease, rice, sea-weed, and cabbage, dyspepsia in all its protean forms is common. All diseases of the eye prevail—conjunctivitis, granular lids, entropion, and pterygium are the most common forms. In this part of China the people seldom consent to an operation on the eye, demanding to be cured by the application of medicine alone. A few submit to operations. Almost every medical report written in China speaks of the universal prevalence of skin diseases, specially the parasitic varieties. This is very truthfully attributed to the want of cleanliness. Still, a large number of non-parasitic complaints are found, and, I think, not enough stress has been laid upon the overcrowding, foul air, and poor nourishment as factors in the production of these diseases. This is shown by the readiness with which they yield to treatment when admitted to the wards of the hospital. Here, in addition to the baths and clean clothing, they have pure air, good food, and cheerful surroundings, which do quite as much, or more, for the cure of these complaints as the medicines administered. Beri-beri is not uncommon, many patients have it in a mild form which shows a tendency to recovery during the winter months; relapses, however, are frequent. When the patient is attacked with the severe form of the malady, with marked numbness of the extremities and round the mouth, pains in the legs and general anasarca, residence in a hill country seems to offer the only chance of relief. The Chinese are peculiarly liable to the formation of large abscesses. The most common are those in the subcutaneous areolar tissues of the chest, back, and the upper and lower extremities. These abscesses frequently attain an enormous size before the patients apply for relief. Post-pharyngeal, psoas, lumbar, perityphlitic, perinephritic, abscesses in the sheath of the rectus abdominis muscle, and, in fact, every variety of abscesses are much more frequently encountered here than they are at home.

OBITUARY RECORD.—FENNER HARRIS PECKHAM, M.D., one of the oldest and best known physicians in Rhode Island, died at his home in Providence, on the 17th of February.

He was born in 1820, in Killingly, Conn. His father, Dr. Hezael Peckham, was an able and noted physician. The son was graduated from Yale Medical College in 1842, and practised in East Killingly—now known as Putnam Heights, till 1852, when he removed to Providence, when he at once acquired a large practice.

He became a Fellow of the Rhode Island Medical Society and was for two years its President. Besides addresses and reports of special cases, he was the author of a monograph on "Hydrophobia," read before the American Medical Association, and also one on "The Topographical and Geological Condition of the Second District of Rhode Island." For several years he was physician to the Marine Hospital at Providence.

In 1861, he was commissioned Surgeon of the Third Rhode Island Heavy Artillery Regiment.

In 1863, he was appointed Surgeon of the Board of Enrollment of the Second District of Rhode Island. The cause of death was chronic Bright's disease, from which he had suffered for nine years, during which period he had not been in active practice.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 22 TO FEBRUARY 28, 1887.

HUNTINGTON, DAVID L., *Major and Surgeon.*—Ordered for duty at San Diego Barracks, California, and granted leave of absence for one month from March 1, 1887.—*S. O. 45, A. G. O.*, February 25, 1887.

WHITE, ROBERT H., *Captain and Assistant Surgeon.*—On being relieved by Major Huntington, to proceed to Angel Island, California, and report to commanding officer for duty at that post.—*S. O. 45, A. G. O.*, February 25, 1887.

TESSON, LOUIS S., *Captain and Assistant Surgeon.*—Ordered for duty as attending surgeon at Headquarters, Division of the Missouri, and Examiner of Recruits at Chicago, Ill.—*S. O. 44, A. G. O.*, February 24, 1887.

BARROWS, CHARLES C., *First Lieutenant and Assistant Surgeon.*—Resignation accepted by the President, to take effect February 17, 1887.—*S. O. 42, A. G. O.*, February 19, 1887.

BLACK, CHARLES S., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Clark, Texas, to Fort Davis, Texas.—*S. O. 23, Department of Texas*, February 18, 1887.

MASON, CHARLES F., *First Lieutenant and Assistant Surgeon.*—Resignation accepted by the President, to take effect March 25, 1887.—*S. O. 44, A. G. O*, February 24, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MARCH 12, 1887. NO. 11.

ORIGINAL LECTURES.

EXCISION OF THE KNEE.

A clinical lecture delivered at the Pennsylvania Hospital.

BY JOHN H. PACKARD, M.D.,
SURGEON TO THE HOSPITAL.

GENTLEMEN: I have to-day to bring before you a case in which the operation of resection or excision of the knee-joint is called for; a case in which the articulating ends of the femur and tibia are so spoilt by disease, the result of injury, as to render the restoration of the normal state of the joint hopeless, and to necessitate surgical interference.

This little fellow, eleven years of age, says that he hurt his left knee by a fall, about six weeks before his admission to the hospital, which was on the 24th of November, 1886. For several days after the accident, he ran about and played, but was then compelled, by increasing lameness, to give the limb rest. The knee became swollen and flexed, and very painful on the slightest attempt to extend it; the skin remained natural, but was traversed by a few large superficial veins.

On the 2d of December, Dr. Roberts, who had charge of him, had him etherized, and forcibly extended the leg on the thigh. That evening his temperature rose to 103.6°, but it gradually fell again to normal. The knee, five days later, was in exactly the same condition as before.

The child's general health seemed good, but he was put upon the use of cod-liver oil, with syrup of lactophosphate of lime and syrup of iodide of iron. His appetite is now fair, and he sleeps well. This favorable state of things would not, however, continue if the local disease were allowed to run its course.

On examining the joint, we find it slightly swollen, tender, and somewhat hotter to the touch than that of the sound side. It is flexed at a right angle, and cannot be extended, the effort to straighten it causing severe pain. The patella is only very slightly movable. Note also the change in relation of the articulating surfaces; the head of the tibia has slipped backward so as to be applied to the posterior portion of the condyles, so that these latter processes seem to project forward as a double rounded mass. But although the hinge-motion of the joint is gone, there is undue lateral mobility; that is, when I grasp the thigh with one hand, and the ankle with the other, I can sway the foot from side to side as I could not if the lateral ligaments of the knee-joint were sound.

You will, of course, perceive that even if we could from this moment set aside the inflammatory process in this joint, and cause union to occur between the joint surfaces, the boy would be hopelessly crippled. We, therefore, propose to relieve the inflammation and give the limb a useful shape, by the excision of the diseased joint.

Excision consists in laying open the joint, sawing off the diseased bones, removing all degenerated synovial membrane, placing the sawn ends of the bones accurately in contact, and closing the wound in the skin. By proper appliances we then keep the parts supported until union has taken place between the bones. In the elbow or shoulder, we try to get mobility; but in the knee, the value of the lower limb consisting in its firmness as a support for the body, this would be a disadvantage. I am aware that surgeons have sought to obtain a movable joint at the knee, but cannot now recollect having seen any report of a thoroughly satisfactory result of such an attempt.

It is of much importance, if possible, to saw through the epiphysis only, so as to save the epiphyseal junction, in order that the subsequent growth of the bone may not be interfered with; hence the slice removed from each bone should be as thin as it can be made, to embrace all of the diseased portion.

Some ingenuity has been bestowed upon the method of dividing the bones. Thus it has been proposed to saw the end of each bone in two planes at an angle to one another; the planes in one bone forming an entering, in the other, a projecting angle. My own practice has always been to carry the saw directly across each bone, but slightly slanting the blade, so as to cut each at the expense of its posterior portion; thus when united they form a very slight angle forward, which facilitates walking by enabling the patient to get some spring forward on the toes. I think the gait thus secured is decidedly better than that obtained by placing the limb perfectly straight.

Operations on the bones and joints are among the surgical procedures most distinctly concerned in the benefits of the modern antiseptic methods. Especially is this true of excision of the knee. Under the former practice, free suppuration was inevitable, and the dressings had to be changed daily. To avoid the disturbance of the limb which this involved, I, many years ago, devised a splint of which the thigh and leg portions were bracketed together, while that corresponding to the knee was arranged as a shelf to slide in and out. Under the antiseptic system this provision is needless. The dressings are not to be disturbed, unless for some special reason, for several weeks.

The child being now etherized, and the limb thoroughly cleansed, an Esmarch bandage is applied. This, like everything else which is allowed to come in contact with the part to be operated upon, has been depurated by means of the solution of bichloride of mercury.

On opening the joint at the side of the patella, you perceive at once a grayish-yellow, puffy mass protruding. This indicates a condition of the synovial membrane known as gelatinoid degeneration. I now carry an incision across the front of the joint, through the

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ligament of the patella, from one side to the other. I now separate the ends of the femur and tibia, and you see the inflamed and eroded state of the articular cartilages, with a small amount of ill-conditioned pus, and a fringe of broken-down tissue about their margins. I divide the crucial ligaments, strip down the periosteum, and apply the narrow blade of a Butcher's saw at the back of the tibia. Cutting from behind forward, I remove a thin slice of the bone.

I now do the same at the lower end of the femur. Note the peculiar grayish-yellow color of the sawn surfaces, and that on that of the tibia there is a small patch which is softer and paler than the rest. When the constricting elastic band round the thigh is removed, you will see the healthy red color of the marrow return.

Now I dissect out the patella from the fibrous envelope constituted by the tendon of the quadriceps. This little bone would be useless if left, and might give rise to trouble, so that it is much better out of the way. The elastic band is now loosed from about the thigh; the bone-marrow becomes red, and the edges of the skin swell up, and a rather free flow of blood occurs, but soon slacks. No vessels appear of sufficient size to require ligation.

With this spoon-shaped, sharp-edged curette, I now scoop out the small patch of soft and diseased bone from the sawn surface of the tibia, and scrape away all the dirty, sloughy tags of serous membrane and fibrous tissue. Two sinuses extend, one from the outer side of the joint an inch or two upward along the femur, the other from the inner side of the joint a scant inch downward along the tibia; these are also curetted, and through a counter-opening at the extremity of each, a drain of several strands of fine carbolized catgut is passed, filling up the whole tract. A small pledget of the same material is packed into the cavity where the sawn end of the tibia was scraped.

The bones are now ready to be apposed, and when this is done you see that they fit accurately together; that the lateral outlines of the limb are correct, and that when looked at from the side there is seen to be a very slight angle between the axis of the thigh and that of the leg. In order to keep the sawn surfaces exactly together, I now drill each bone at two points, from the anterior wall obliquely to the sawn surfaces, and through each pair of these drill-holes I pass a suture of thick chromicized catgut, and tie it firmly. The introduction of these thick catgut sutures through the drill-holes is sometimes, as you have seen on one or two previous occasions, a matter of difficulty. I have, therefore, provided each of these with a silver-wire guide, the gut being pierced near its end with the wire, which is then wrapped around it and twisted, leaving one long end. This wire being first passed through the drill-holes, the gut is drawn after it, as you see, with the utmost ease.

The wound in the skin is now carefully closed from end to end with carbolized catgut sutures; the protective is applied, then iodoform gauze, and borated cotton, with an antiseptic gauze bandage over all. Now the limb is carefully bandaged to a Day's posterior splint, padded so as to correspond exactly with the outline of the parts. Finally, the limb, thus secured, is placed in a cradle made with a Smith's wire frame splint, for the purpose of suspending it so that the child can change his position in bed without doing any harm. The suspension is made in the ordinary way, by means of a gallows-frame with a pulley sliding in the cross-piece, and a cord and tent-block.

(On the evening following the operation, the child's temperature ran up to 102.4°; and on each of the four ensuing evenings it reached a little over 100°. After this it scarcely varied from the normal. January 19th, the dressings were removed, with the idea that there might be some local cause for the slight evening rise in temperature; but none was found. On the 2d of February, the eighteenth day, the limb was dressed before the class, and found in the most satisfactory condition; the wound soundly healed, and a very marked degree of firm union between the bones.)

ORIGINAL ARTICLES.

PAROXYSMAL CARDIAC DYSPNŒA.[1]

BY ALFRED L. LOOMIS, M.D., LL.D.,
PROFESSOR OF PATHOLOGY AND THE PRACTICE OF MEDICINE IN THE UNIVERSITY OF THE CITY OF NEW YORK.

IN very many of those valvular diseases of the heart which are accompanied by hypertrophy and secondary dilatation, dyspnœa is a prominent symptom. Under such circumstances, however, the dyspnœa is of gradual development, is often, and indeed usually, more or less persistent, and depends rather upon the secondary pulmonary and renal changes, than directly upon the cardiac lesion.

In the form of dyspnœa which I now propose to consider, and which I have designated paroxysmal cardiac dyspnœa, the difficulty in breathing is due entirely to the cardiac condition, and the consequent temporary slowing or permanent arrest of the blood current in the heart and pulmonary vessels. In this condition there are no organic or functional changes within the lungs to obstruct the entrance of air to the alveolar surfaces, and the disturbing element in the relations between the blood and air is, therefore, entirely upon the side of the vascular element, which becomes diminished in both quantity and rapidity. The symptomatic results, however, are similar in the two conditions, for the effects are the same, as is readily proved by physiological experiments, whether the air or the blood is prevented from entering the lung. Under whatever diseased conditions this form of dyspnœa may arise, it has this one essential cause, viz., a temporary or permanent arrest of the blood in the heart and pulmonary arteries, a condition which evidently must either be paroxysmal or speedily terminate in death.

When distinct valvular changes are present with consequent hypertrophy and secondary dilatation, a gradually developing chain of symptoms precedes and gives warning of the approach of more serious conditions, and the typical history of the case seldom allows of an error in diagnosis. But when, on the contrary, the entire history is one which does not direct attention to the heart, and the immediate symptoms are cerebral and neurotic, rather than pulmonary or cardiac, and when even a physical exami-

[1] Read before the New York State Medical Society, February 2, 1887.

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nation of the chest shows few, if any, of the familiar or ordinarily recognized signs of organic disease, it is quite possible, and it often happens, that the exact nature of the case is not detected, or the dangers which attend it fully appreciated. It is just because it is so commonly the result of obscure cardiac changes, rather than valvular lesions, that I wish to emphasize its importance, and invite attention to its more careful study.

That the exact condition which I desire to present may be more apparent, I will briefly state the histories of two cases which seem to me, from a clinical aspect, to be typical, although the pathological lesions were essentially different.

CASE I.—Mr. C., aged fifty-four, of sedentary habits, exceedingly temperate, having never been ill a day in his life, came into my house much out of breath, having ridden about a hundred miles in the cars that morning, and having walked quite rapidly from the Forty-second Street Depot (a distance of about half a mile). While waiting a few minutes in my reception-room his difficulty of breathing increased, and, as he attempted to walk across the hall to my consulting-office, I noticed that he staggered. As I took hold of his arm to steady him, the muscles were quite rigid; he was exceedingly pale, and was apparently unable to speak; as I placed him in a chair, a tremor passed over his body, and he immediately sprang up, braced himself against the corner of the mantle, and gasped out "brandy." When this was furnished he swallowed with difficulty; his head was thrown back, his face became deathly pale, with an appealing expression upon it, the surface of his body was covered with a cold sweat, his pulse was feeble and intermittent, at times imperceptible at the wrist. The efforts to breathe became more and more desperate, and as I steadied him—for he would not allow me to place him in a horizontal position—it seemed as if each breath would be his last. In about twenty minutes the paroxysm gradually passed away.

As soon as he was able to talk, he told me that he had had several similar seizures, but none so severe. When he was sufficiently relieved I made a careful examination of his chest. Normal respiration could be heard over the entire chest; both heart sounds were indistinct, and there was an entire absence of normal cardiac rhythm; three or four quick cardiac contractions were followed by a prolonged pause, which was lengthened when he held his breath; no cardiac murmur could be made out.

My diagnosis was degeneration of the ventricular walls, with dilatation of the heart cavities, especially the right.

The patient never entirely recovered from this attack, for after this, slight physical exertion would always bring on more or less severe attacks of dyspnœa; he never, however, had any œdema of the lungs, or of the extremities, and his urine was very albuminous.

A month after I first saw him, one morning, about four o'clock, he suddenly awoke in a paroxysm, and died in a few minutes.

At the post-mortem examination the walls of the right ventricle were found exceedingly thin, at points almost translucent, readily giving way under pressure. Microscopical sections at different points showed advanced fatty changes in the heart muscles. Both ventricular cavities were dilated, especially the right, and contained large exsanguinated clots, which were so interlaced with the chordæ tendineæ of the tricuspid valves, as to interfere markedly with the blood current. The walls of the left ventricle were pale, but of normal thickness, and showed comparatively little evidence of degeneration; the valves were normal, the lungs were pale and free from disease, the liver and kidneys were engorged, but otherwise healthy.

CASE II.—A physician, aged sixty-eight, of the most abstemious habits, who had never been seriously ill, in December, 1882, had a severe pleuropneumonia on the left side, complicated by pericarditis, from which he slowly recovered. At the expiration of four months from the commencement of his attack. he was able to resume his active professional work, and seemed perfectly well for more than a year after, although there remained the evidence of quite extensive pleuritic thickenings and adhesions at the base of the left lung. He then began to suffer from attacks of paroxysmal dyspnœa, the attacks usually lasting about half an hour. They were usually brought on by physical exertion, mental excitement, or came on immediately after eating.

I saw him in one of these attacks: his face was pale and anxious, his surface cool, his breathing exceedingly difficult, the muscles of the neck and chest being fixed and rigid during inspiration, but he complained of no pain in the chest; his pulse was feeble, intermittent, and, at times, imperceptible.

A physical examination of the chest showed that there was no obstruction to the entrance of air into the lungs, and no sign of pulmonary congestion or œdema. The apex beat could not be felt, and the heart-sounds could not be made out; all was confusion over the præcordial space; no cardiac murmur was heard.

As the attack passed off, the heart-sounds became regular in rhythm and normal in character, except that the first sound was short and valvular.

In two hours after the subsidence of the paroxysm he said that he felt as well as usual, and claimed that it was only an attack of indigestion. I warned him of his danger, and tried to persuade him to give up work and live a quiet life. I prescribed for him, but he said that he did not believe in drugs; he therefore never took my prescription, but went on doing the same work that he had been doing for forty years.

Afterward I occasionally met him in an unprofessional way, and he always expressed himself as feeling well, except that he had to be very careful of his diet, and about going up stairs. One morning, about three o'clock, four or five months after, he awoke gasping for breath, and in a few moments was dead.

A post-mortem examination showed that all the organs of the body were in a normal condition, except his heart and the left pleura; the surfaces of the pericardium were closely agglutinated to each other, and there were firm adhesions between the

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left pleura and pericardium; and at the lower third of the left pleura there were firm adhesions and extensive pleuritic thickenings. The heart cavities were distended with blood, showing that death occurred, or the heart stopped, during its diastole. There were no valvular lesions. Both coronary arteries were completely obstructed; in one the obstruction had evidently existed for some time; although the calibre of the other was diminished for an inch or more, it evidently had been pervious until a short time before death, as it was filled by recent thrombus. The aorta was slightly atheromatous. Section of the cardiac walls at different points showed quite extensive interstitial myocarditis, which seemed to be a part of the chronic pericardial changes.

CASE III.—About two months since, I was invited to visit a gentleman, sixty years of age, who was dead when I reached his residence, but whose previous history, as given to me by his physician, was similar to the one just related. In this case death occurred suddenly, immediately after the patient had rapidly ascended two flights of stairs. No post-mortem examination was made.

In studying the pathology of this form of dyspnœa I have found degeneration and thinning of the cardiac walls its most constant lesion; the degenerations in some cases were fatty, in others fibroid; and in one case, which occurred during convalescence from typhoid fever, simple softening. In every instance the degeneration commenced in the right ventricular walls, or was more advanced there than in the left.

Together with the changes in the heart walls in some of my cases, there was atheroma of the aorta and of the aortic valves, accompanied by more or less disease of the coronary arteries. In two instances the coronary arteries were completely obstructed.

Whenever any of these degenerative changes in the cardiac walls has reached an advanced stage, especially if it is associated with extensive atheroma of the aorta, attacks of cardiac dyspnœa may occur from very slight exciting causes.

But it not unfrequently happens that the signs of such cardiac failure may be often repeated without a fatal paroxysm, until some obstacle is developed within the heart cavities to obstruct the passage of blood, and so to embarrass an already feeble heart that it cannot recover itself.

A frequent cause of death, under such circumstances, is the formation of exsanguinated fibrinous masses, which become entwined around the chordæ tendineæ of the tricuspid or mitral valves.

It seems probable, in such cases, that there is time and opportunity during the stasis of blood in the ventricles, which results from the imperfect and feeble ventricular systole occurring at the commencement of an attack, for the formation of cardiac thrombi. As the heart recovers the filaments of fibrin become separated, and interlace themselves with the chordæ tendineæ. The curtains of the valves are thus held in the valvular opening, and there results a complete arrest of the blood current through the heart, which leads to sudden death.

In some instances I have found both the right auricle and ventricle filled with exsanguinated coagula, which sent prolongations into the pulmonary artery, and obstructed the blood current to the lungs. In one instance, a large pericardial effusion, by its pressure on the heart, arrested cardiac contractions, and thus prevented the passage of blood to the lungs.

I have a specimen where death occurred suddenly on the third day of an acute lobar pneumonia, in which a thrombus entirely filled the cavities of the right auricle and ventricle, the heart being, in other respects, healthy.

In every case of paroxysmal dyspnœa terminating in death, which has come under my observation when I could obtain a post-mortem examination, there was unmistakable evidence of a mechanical arrest of the circulation in the heart, either from failure of its muscular power, or from obstruction to the current of blood through the heart, by fibrinous masses in its cavities.

In the majority of instances the arrest is in the right heart, and, as a result, the blood is shut off from the pulmonary artery; the lungs, under such circumstances, will not only be free from congestion, but bloodless, while the other internal organs will be found intensely congested. If the obstruction is in the left heart, the blood current will be arrested in its passage to the aorta, then the lungs will be entensely engorged, and the other internal organs will contain less than their normal amount of blood.

It seems to me reasonable to believe, that the primary or predisposing cause in all cases of paroxysmal cardiac dyspnœa, is a gradual failure in the organic power of the heart, that the exciting cause of the paroxysm is anything which will lead the heart failure to an entire suspension of the cardiac circulation. Thus when any form of degeneration of the cardiac walls exists, mental shock, excessive physical exertion, violent passion, or sudden fear, may act as an excitant of the paroxysm. These excitants may differ widely from each other, for a feeble heart may be stopped as readily by a call for stronger action which it is not prepared to meet, as by suddenly cutting off its blood supply by obstructing its nutritive vessels.

During the relaxation of the physical forces which comes in the early hours of the morning, after profound sleep, when the heart, in the perfectly healthy state, has its minimum propelling power, is the period in the twenty-four hours when one with degenerated heart-walls is most easily affected. Often such persons will awake about four in the morning in the midst of a paroxysm of dyspnœa. In the two instances which I have related, death occurred almost instantaneously about that time of the day.

A distended stomach from flatulency or any other cause, produces little inconvenience in a healthy person beyond a sense of fulness or slight pain, but in one with a degenerated heart, when a distended stomach presses on the diaphragm, the inspiratory movements become impeded, the pulmonary circulation embarrassed, and the enfeebled heart enters on a struggle for which it has no reserve power, and a more or less severe paroxysm of cardiac dyspnœa is the result.

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A fully developed paroxysm usually comes on with a sense of constriction across the chest, which is immediately followed by a struggle for breath, accompanied by spasmodic contractions of the respiratory muscles, the surface of the body becomes pale and cold, the countenance extremely anxious, and the patient, if the paroxysm is not too severe, is constantly changing his position, with the hope of obtaining relief. Painful muscular spasms occur in the voluntary muscles in different parts of the body. The mind remains clear. The pulse is feeble, irregular, and intermittent, and frequently there will be a prolonged absence of the radial impulse. This, as well as other forms of cardiac dyspnœa, presents a peculiarity in the relation of pulse and respiration as distinguished from all other forms of difficult breathing, in that the return of the pulse precedes instead of follows the subsidence of the dyspnœa. In some cases the patient will complain of pain at the lower portion of the sternum, which shoots through the chest to the back.

If death takes place during the paroxysm, the final act is one of persistent muscular contraction, the heart-failure being followed by a tonic spasm of the muscles of the chest, and a rigidity of all the voluntary muscles.

The symptoms which precede an attack, or what may be called its preliminary symptoms, are few, but they are diagnostic. One of the earliest and most constant, and one which may exist for months and perhaps for years before the occurrence of a well-marked paroxysm, is a sinking or exhausted sensation in the præcordial region; this sensation will come on from very slight causes, such as sudden physical exertion, or strong mental emotions. At first a diffusible stimulant, a few swallows of hot water, or a recumbent posture will relieve it.

In some instances the patient will complain of a choking sensation, commencing in the cardiac region, and passing rapidly to the pharynx, which usually comes on immediately after taking food, or at the moment of falling asleep; it is often very oppressive, and to nervous subjects alarming. So-called dyspeptic symptoms will often accompany it. Sooner or later there will be established an irregularity in the cerebral circulation indicated by attacks of vertigo, headache, hissing sounds in the ear, and occasional dimness of sight. For a long time these symptoms may cause the patient no serious inconvenience, but eventually a series of obscure nervous phenomena will develop, he will become irritable, melancholy, and perhaps hypochondriacal, and he will very likely be treated for neurasthenia, or perhaps congestion at the base of the brain. At length attacks of faintness with pallor will occur, and the patient will be troubled with insomnia, his mental faculties will be disturbed, and slight physical exertion, as going up stairs, will cause breathlessness.

In one who presents these symptoms an attack of paroxysmal cardiac dyspnœa is liable to occur at any moment. The physical signs, if the general symptoms are well marked, are usually distinctive; the cardiac impulse is feeble and difficult to locate, there is usually an epigastric tremor, the heart's action is irregular in force and rhythm, although the patient may not be conscious of its irregularity. The first sound of the heart is short and valvular in character, and during periods of great cardiac irregularity it is difficult to distinguish the first from the second sound.

In the majority of cases there are no cardiac murmurs, and no evidence of valvular insufficiency. There will be an entire absence of any pulmonary disease adequate to produce the general symptoms, and an examination of the urine will usually give negative results. These patients will become exceedingly anxious about themselves, and will consult one physician after another, without obtaining anything more than temporary relief.

When a well-defined paroxysm has once occurred, little can be done to avert a fatal issue, but much may be done to delay the occurrence of the first paroxysm, or rather to arrest the degenerative changes in the heart-wall, and prevent the sudden dilatation of its cavities which so often leads to the first paroxysm. This must be accomplished mainly by a restricted diet, and by a carefully regulated life. There is perhaps nothing which so certainly induces the degenerative changes in the cardiac muscles, that allows of sudden dilatation of its cavities, as the daily intemperate use of alchohol; it is evident in such cases that its intemperate use must be stopped, but never suddenly or entirely, for a moderate amount of alcohol is essential to the nutritive processes in a chronic alcoholic subject.

In all cases the diet should be restricted to milk, meat, and a small amount of bread; sugars and starches should be avoided and the quantity of food taken at any one time should be limited. Flannel should be worn next the skin, and the surface of the body should never become chilled. Each day should be divided into eight hours for sleep, eight hours for labor, and eight hours for rest and refreshment, and this division should be strictly adhered to. In other words, the entire life of the individual should be carefully regulated. Next to diet, the most important thing is systematic daily exercise in the open air; the exercise should never be violent or carried to fatigue; commencing in a moderate way, it should be daily increased until the individual is able to take long walks without fatigue, avoiding elevations and going up stairs.

The medical treatment resolves itself into alkalies as eliminatives; the different preparations of iron as tonics, in combination with which small doses of digitalis should be given, five or ten drops of the tincture twice a day. In alcoholic subjects strychnine should be combined with the iron. All of these drugs should be given in such small doses that their use may be continued for a long time.

The first thing in the management of a paroxysm is to give the patient plenty of fresh air, the second is to keep him in a semi-recumbent posture, the third to apply artificial heat to the surface of the body. The only two medicinal agents which I have found to have any positive control over a paroxysm are the nitrite of amyl and nitroglycerine. After one paroxysm has occurred nitroglycerine should be given whenever the premonitory symptoms of

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an attack are present. During a paroxysm nitrite of amyl carefully administered will give at least temporary relief. I have patients who carry pearls of the nitrite of amyl constantly with them, which they use to ward off impending attacks.

THE PHYSIOLOGICAL ACTION OF SPIGELIA, OR PINKROOT.

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NOTWITHSTANDING the fact that several writers have described this drug from a clinical standpoint, no one, so far as I am aware, has ever studied its physiological action.

In the human being the drug is said to produce symptoms closely resembling those produced by any of the mydriatics, such as flushing of the face, dryness of the skin, and talkative delirium. Only two cases of fatal poisoning in man have ever been reported, and these have passed from text-book to text-book till the original report has been lost.

When as much as three ounces of the fluid extract of spigelia is given by the stomach to a large dog weighing forty pounds, the following symptoms appear: Almost immediately after the ingestion of the dose the animal has short and quick expiratory movements, amounting almost to a cough; soon after the pupils become widely dilated, and at the same time very marked internal strabismus asserts itself; the eyes becoming fixed in this position so that they cannot follow any object, such as a pencil, when it is passed from side to side. Constant retching, with no result, now comes on, the animal standing, and apparently suffering from no sensory or motor palsy. There is no change in gait. Soon after this marked exophthalmia develops itself. The retching having lasted about five minutes, now passes off, and at this time signs of muscular weakness and lack of co-ordination appear; the walk becomes staggering in both fore and hind legs. The respirations now become very rapid, resembling those of a dog after a long, hot run, the tongue hangs from the mouth and is dry and red, and the nose is hot and no longer moist. Muscular power is progressively lost, so that the dog frequently falls when endeavoring to walk, but sensation does not seem to be affected. About this period the animal lies down and passes into deep sleep, which in turn soon passes into coma, and death follows without any movement being made, evidently from a general failure of vital force. The respirations, as death approaches, become slow, and are finally extinguished consentaneously with cardiac arrest.

In the frog the same symptoms occur as in the higher animal, including the marked exophthalmia and to a less degree the strabismus. The fixation of the eyeball is extreme, and it feels to the finger like a hard knob, which the lid cannot cover. Muscular weakness with dropping of the jaw comes on, and motor power is constantly decreased, until the batrachian lies relaxed and powerless. That the action of the drug in thus destroying motor power is spinal, was proved by the following experiments: If the hind legs are protected from the poison by ligation of the abdominal aorta, the palsy is as great as under ordinary circumstances, and reflexes are totally abolished. Further, if the spinal cord be directly galvanized no movements occur in the hind legs; and, lastly, if strychnia be injected into the body, even in large amount, its action is not only slight, but occurs after the lapse of many minutes. That the drug has no action on the motor nerves is proved by the fact that when the poison reaches the efferent nerves, either through the circulation, or when directly applied, galvanization of the nerve trunks causes normal contractions in the tributary muscles, and the sensory nerves likewise escape, for if the drug be applied directly to the nerve and the foot irritated, signs of pain are elicited, and reflex movements occur. Further than this, if the vein in the leg be tied, and the drug injected into the limb, thus protecting the spinal cord, reflexes occur on irritation of the drugged foot.

That the palsy is not cerebral is proved by the fact that movements of muscles supplied by the cranial nerves continue long after the movements in the legs have ceased, and by the other experiments already detailed.

The action of the drug on the circulation is as marked as its effects on the nervous system, and on the cardiac muscle it acts as a direct depressant poison, for if it be injected into the jugular vein in such a way as to come suddenly in direct contact with the heart the movements of that viscus almost instantly cease. Further than this, if the excised heart of the frog is dropped into a strong solution of the drug its movements are almost immediately stopped in a condition of diastolic arrest, although the relaxation is not very marked. When a frog receives as much as twenty minims of the extract of spigelia the heart is slowed to a considerable extent, as much as ten or fifteen beats per minute, and diastole, while not increased in length, is nevertheless very full and marked. The change from systole to diastole is abnormally rapid, so that the heart in one moment in systole springs with a quick movement to its full diastolic condition. Systole, however, gradually increases on diastole, in much the same manner as in digitalis poisoning, until finally the greater portion of the ventricle fails to dilate, the apex being tilted more and more forward while the ventricular walls are powerfully contracted. As the systolic pauses increase, the diastolic movements decrease in volume, until finally the heart dilates no more than it does normally. At this time the powerful and heretofore spreading systolic contractions seem to lose power and the heart shortly stops all movement in a semi-relaxed state. Experiments on the warm-blooded animal show that on the injection of one drachm, or less, of the drug the action of the heart is very rapidly slowed in its movements, and that this slowing is chiefly due to central inhibitory stimulation is shown by the fact that if the vagi be cut before the drug is given this slowing does not occur, and also if after the drug has slowed the heart the vagi be cut the inhibition no longer remains. That the fall of arterial pressure produced

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by this drug is due in great part to the cardiac depression which it produces is proved, since asphyxia will cause a rise in pressure, and that the pressure returns nearly to normal as soon as the heart gets rid of the drug which has been suddenly injected into it. On the respiratory centre the drug seems to have a still more depressing influence, respiration ceasing some moments before the cardiac arrest.

These experiments were repeated again and again in order to avoid erroneous conclusions. The extract used was prepared by Milton Campbell, druggist, Twenty-first and Pine Streets, of this city.

BACTERIOLOGICAL NOTES.

By GEORGE M. STERNBERG, M.D.,
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The Bacillus of Glanders. (*Bacillus Mallei.*)

The researches of Löffler and Schütz,[1] published in 1882, established in a definite manner the etiological relation of the minute bacillus found by them in the diseased tissues of infected animals, to the disease known in this country as glanders, Ger. *Rotzkrankheit*, Fr. *Morve*. This has been confirmed by the independent researches of Israel,[2] by the subsequent experiments of Weichselbaum,[3] and of Kitt,[4] and by the more recent investigations of Löffler.[5] All of the observers named agree in describing this bacillus as a slender rod, somewhat resembling the tubercle bacillus, but of more uniform size and somewhat broader.

According to Flügge,[6] in stained preparations the rods usually appear to be made up of dark and bright portions, which under a low power give the impression of a chain of cocci. Flügge supposes that the bright, unstained portions of the rods represent spores. Löffler has not been able to convince himself of the presence of spores, although he has found that development may occur after three months from bacilli which have been kept in a desiccated condition. The same author has found that exposure to a temperature of 55° C. (131° F.) for ten minutes is sufficient to kill the bacilli. This fact is opposed to the view that the bright spaces in the rods are spores, as Flügge has inferred. According to Weichselbaum, the Rotz bacillus forms spores. Evidently this is a question which cannot yet be considered definitely settled.

The bacilli are endowed with active movements (Eisenberg), and grow readily in a variety of culture-media—on blood-serum of the horse or sheep (not so well on that of the ox), on agar-agar, and flesh-peptone-gelatine, and in neutralized infusions of the flesh of the horse, the sheep, the ox, the rabbit, the dog, etc. Cooked potato furnishes an especially favorable soil upon which to cultivate the bacillus of glanders. Growth occurs upon these in two or three days at a temperature of 37° C., in the form of a thin, brownish, slimy layer. According to Weichselbaum and Kitt, growth also occurs, although very slowly, at the room-temperature (25° C.).

Upon blood-serum, at 37°, growth occurs in three days, in the form of numerous little transparent drops scattered about on the surface (Eisenberg).

The bacilli are best stained with a concentrated alkaline solution of methylene-blue in water. For staining the bacilli in sections of tissue containing them Löffler recommends that they be immersed in the above-mentioned solution for twelve to twenty-four hours, and then carefully treated with very dilute acetic acid, until the sections have been decolorized sufficiently to bring the bacilli into view. After this treatment they should be washed out in alcohol, and immersed in oil of cedar, which does not dissolve out the aniline colors, and is therefore to be preferred to oil of cloves in all preparations in which these colors are used for staining bacteria.

According to Cornil and Bakes, the bacilli of glanders differ from the bacilli of tuberculosis in the fact that they are not stained by Ehrlich's method, and that when stained with an aniline color they are decolorized when treated with nitric acid. Löffler first obtained cultures of the bacillus, which he had previously recognized in the characteristic nodules of an infected animal, by placing small bits of lymph-glands, spleen, liver, and lung tissue, in a variety of fluid media, and upon blood-serum of the horse and of the sheep. At the end of three days, during which time the cultures were kept in the incubator at 38° C., development had occurred in the various fluid media, and upon the jellified blood-serum, in the form of small transparent droplets, having a yellowish color. A series of pure cultures, made from this source, was subsequently tested upon various animals. Two horses, inoculated respectively with the eighth and tenth generation of the bacillus, developed unmistakable glanders; one died, and the other was killed. In both the characteristic lesions were found, and the presence of the bacillus was demonstrated in the diseased tissues and lymphatic glands, by microscopical examination, and by culture experiments.

Further experiments upon animals showed that the guinea-pig, and the field mouse, are the most easily infected by inoculations with pure cultures; that the rabbit is somewhat less susceptible; and that there are decided differences in the resisting power of different individuals. While the field mouse is extremely susceptible, the house mouse and the white mouse are almost insusceptible. The same is true of the white rat, which seems to be immune from most of the infectious diseases which have been studied experimentally. The ass and the sheep are susceptible. Among birds the pigeon alone exhibited some degree of susceptibilty.

Löffler insists that in a suspected case of glanders in man, the diagnosis can be established without difficulty by a demonstration of the presence of the bacillus. This is easily accomplished by ob-

[1] Deutsche med. Wochenschrift, 1882, No. 52.
[2] Berl. klin. Wochenschr., 1883, No. 11.
[3] Zur Ætiologie der Rotzkrankheit des Menschen, Wiener med. Wochenschr., 1885, 21–24.
[4] Versuche über d. Züchtung des Rotzpilzes. Jahresber. d. München. Thierarznei Sch, 1883–4.
[5] Die Ætiologie der Rotzkrankheit. Arbeiten d. Kaiserl. Gesundheitsamts.,.Bd. 1. Hft. 5.
[6] Die Mikroorganismen, 2d ed., p. 223.

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taining, with proper precautions, the contents of an unopened abscess or pustule, and planting a little of the same upon blood-serum in several test-tubes, and also upon slices of cooked potato. A number of cover-glass preparations should also be made, and stained with methylene-blue. In the course of a few days the characteristic transparent, yellowish droplets will appear upon the blood-serum, and upon the slices of potato a honey-yellow layer will be seen. From these cultures one or more mice or guinea-pigs may be inoculated, in order to confirm the diagnosis. It is not an easy matter to isolate bacilli from the nasal discharge of a suspected animal by means of the plate method. In this case it is simpler to test the question of the presence of the bacillus and the nature of the disease, by inoculating a guinea-pig. Two or three days after inoculation an abscess forms at the point of inoculation, and soon the nearest lymphatic glands become swollen. According to Flügge, when only a small quantity of material has been injected subcutaneously, the process may remain stationary for weeks; otherwise, acute nodular swellings occur in the testicles, or ovaries, upon the vulva or feet, and an ulcerative process is established in the nasal cavity.

Löffler says that infection may occur in animals through a superficial wound, or through the digestive or respiratory tract. The bacilli, apparently, cannot penetrate through the uninjured skin or mucous membrane. Numerous experiments have shown that pus from the nostrils of an animal suffering from glanders, may be introduced into the nasal cavity of a healthy horse, upon cotton wadding, or by means of a brush, without result.

An animal suffering from glanders may give birth to young which have become infected *in utero*. This has been observed in the case of the horse, and Löffler relates an interesting case in which the fact was verified by an experiment upon the guinea-pig. One of these animals was inoculated with material taken from a glanders nodule in the lung of another. A chancrous ulcer developed at the point of inoculation, the glands in the vicinity became swollen, and swelling of the left foot occurred. All of these appearances disappeared, and at the end of five months the animal gave birth to a young one, which was apparently healthy, but died four weeks after birth. A post-mortem examination demonstrated the presence of glanders nodules in the liver, the spleen, and the lungs; not, however, in great numbers. Infection after birth is excluded, from the fact that there was no external evidence of glanders. The nasal cavity was healthy, and the lymphatic glands were not swollen.

CASE OF PYELONEPHRITIS DEPENDENT UPON RENAL CALCULUS.

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ASSISTANT PROFESSOR OF PHYSICAL DIAGNOSIS IN THE UNIVERSITY OF PENNSYLVANIA.

I HAVE brought forward the history of the single case which forms the basis of this paper on account of its intrinsic interest from the standpoint of diagnosis, and the rare character of the specimen obtained at the post-mortem examination.

The patient, Catharine W., aet. forty, was admitted to the Philadelphia Hospital, March 24, 1886. Family history excellent; she has always enjoyed good health until eight years ago, when she first felt pain in the left lumbar region with frequent and painful micturition. These symptoms would vanish at times, but would appear at intervals. In July, eight months prior to the date of admission, she awoke one morning with a violent pain in the left side, which radiated from her back through the abdomen. It was also transmitted down the left limb, and was increased when she straightened the left leg—giving her the impression that she had hip disease. There was also some fever. After this attack she recovered sufficiently to attend to her ordinary duties, but at intervals the pain, with fever, returned, continuing for a week at a time—and the pain in the hip was often sufficient to make her desire to lie with the thigh flexed on the abdomen and the leg on the thigh.

In January of last year, three months before admission to the hospital, she had a severe attack of pain, accompanied by vomiting. From this time she progressively lost flesh and strength. When admitted, March 24, 1886, she complained of a dull aching pain in the splenic region with tenderness on palpation over the lumbar, and also left ovarian region. The most sensitive point was midway between the spine of the ilium, and along the border of the ribs. Between the lower ribs on the left side, nearly down to the crest of the ilium there was an area of dulness, which extended anteriorly to a point corresponding with a line drawn from the anterior superior spinous process of the ilium, to the edge of the ribs. The dulness did not extend downward more than three or four fingers breadth below the edge of the ribs and was masked by the intestinal resonance. She passed usually only a little over eighteen ounces of urine a day, and nearly half was pus.

Her general appearance was anæmic and nervous. The temperature was constantly above 99°, the evening temperature being 1° higher. The general condition continued unchanged during the period of three months which she passed in the ward. Death supervened through exhaustion, June 5, 1886.

The post mortem examination was made twenty-four hours later. The body was emaciated, with but little cadaveric rigidity. On opening the abdominal cavity, the small intestine was found bound down to the uterus and fascia of the pelvis by strong adhesions. A large tumor was situated in the left lumbar region, extending from the rim of the pelvis along the psoas muscle close to the vertebræ. It was about seven inches long and three and a half broad—the upper border of the tumor corresponded with a plane drawn across the body at the tenth rib in a line with the angle of the left scapula. In the anterior axillary region a plane drawn across the body just below the tenth rib would have traversed the bulk of the tumor at its upper portion. On opening the tumor it was found to contain over thirteen ounces of pus. The sup-

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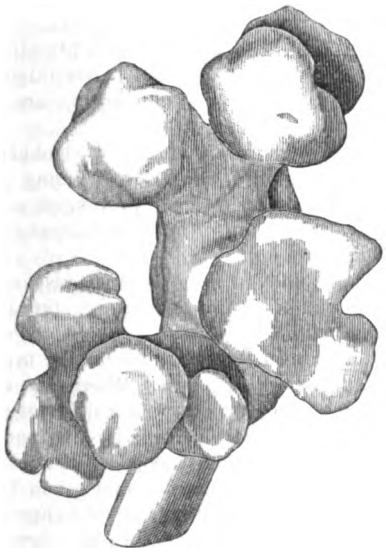
purating sac represented the capsule and pelvis of the kidney, all vestiges of renal tissue having undergone cystic degeneration; the ureter was patulous down to the bladder—its walls were very much thickened. The tumor sac contained a large cal-



culous mass which weighed fourteen drachms, and presented a branched appearance like a piece of coral, each branch doubtless representing as many renal calices. The main portion of the stone probably formed in the pelvis of the kidney, and one long branch descended in the direction of the ureter. There were also a few fragments of a similar character, but the bulk of the stone was one mass. The stone was chiefly composed of oxalate of lime, partially coated with a phosphatic deposit. The bladder was normal, as was the uterus, but both ovaries were occupied by small collections of pus. The left ovary was firmly adherent to the ureter of the same side. A cheesy mass was also discovered in the right broad ligament. The cortical portion of the right kidney was enlarged and fatty—the ureter was normal. The liver presented an anæmic and fatty appearance, weighing three pounds. The pancreas was somewhat enlarged. The case presents several suggestive features.

1. The initial pain, eight years before admission to the hospital, doubtless indicated the commencement of the process, and yet for only eight months were the symptoms sufficiently aggravating to compel her to appeal for medical assistance. While she was under observation the pain was not a prominent symptom, nor had it been in the past. It was mostly a dull sense of weight or uneasiness. She had never had pain characteristic of renal colic, nor blood in the urine. The history of this symptom of pain in this case corresponds with that of many cases of renal calculus. That is, in many instances the pain is not a sufficiently conspicuous characteristic of the condition to be a diagnostic feature. On the other hand, cases of suppurative nephritis of a tuberculous character have been reported in which the symptoms of pain and vesical irritation were so prominent as strongly to point to calculus and the tubercular character of the process could not have been established without the assistance of an examination for the tubercle bacillus.[1] The constant sense of pain and discomfort began in C. W.'s case about eight months before her admission to the hospital, and probably coincided with the commencement of suppuration. A case is reported by J. A. MacDonald,[2] in which the development of the symptoms resembles the present case so closely as to be well worthy of comparison. The appearance of the calculous mass is identical, only the process was bilateral. There were two masses of stone, one in the pelvis of each kidney. A still more remarkable feature is that in MacDonald's case the kidney substance was normal, nor was there even pyelitis. A consideration of this example supports the theory that in the case of C. W., the development of pyelitis was a late complication.

2. Since in this class of cases there is often an absence of characteristic symptoms, the diagnosis must be by exclusion, and in the present case the inferential evidence in favor of calculus was very strong. It was assumed that there had been no primary disease of the bladder. The reaction of the urine was acid—there was no deposit of vesical epithelium, nor was there pain or tenderness over the hypogastrium. On the contrary, the history of dull pain in the lumbar region, latterly with pain in the hips, with the tendency to retain the left leg flexed on the thigh, was highly significant of morbid process in the renal region. The position of the left limb was probably due to implication by pressure of branches of the lumbar plexus. The symptom is most marked in cases of perinephric abscess with implication of the psoas muscle. There had been no history of traumatism, one of the causes of renal suppuration, and the remaining antecedent of suppurative pyelonephritis, viz., tubercle, was excluded in this case by the absence of the tubercle bacilli from the pus,[3] and by the absence of any evidence of tuberculous disease in the other organs of the body.

It was therefore considered highly probable that a calculus was the primary cause of the process. The physical signs yielded by percussion and palpation, of tumor in the lumbar region, could not, of course, indicate the etiology of the suppurative process.

3. The indications for treatment in this and similar cases seem to be confined to operative interference. Internal medication cannot influence the seat of pus formation, or only to a small extent. The free drainage in the case of C. W., as in most cases of calculous pyelitis, showed that aspiration was not likely to be beneficial.

If an incision over the left renal region had been practised in the earlier stages of the process, a correct diagnosis of the condition could have been reached, and the stone removed—with or without

[1] THE MED. NEWS, Dec. 4, 1886. Case of tuberculous suppurative nephritis. Shepherd, of Montreal.
[2] Canada Med. and Surg. Journal, vol. xii.
[3] Examination kindly made by Dr. Crozier Griffith.

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removal of the kidney. Unfortunately, at the time the patient came under our observation it was evident that her strength was insufficient to render operative measures justifiable.

At the post-mortem examination it was observed that the more superficial part of the tumor and the largest collection of pus presented between the tenth and eleventh ribs, just back of the posterior axillary line. The calculous mass, by filling up the lower part of the tumor, formed an obstruction which favored the accumulation of pus in an upward direction. Aspiration directly over this point would have involved the penetration of the diaphragm, so that the only point from which it would have been feasible to reach the collection of pus by aspiration would have been below the twelfth rib in an upward direction, but in carrying out this procedure the needle would have probably impinged against the stone, and the sac containing the bulk of the pus would not have been entered. Aspiration was indeed attempted in C. W.'s case as a tentative measure, and the needle was introduced as indicated, but with a negative result.

HOSPITAL NOTES.

TREATMENT OF PNEUMONIA IN THE NEW YORK HOSPITALS.

BELLEVUE HOSPITAL.

IMMEDIATELY upon admission every patient under the charge of PROF. ALFRED L. LOOMIS undergoes an examination for the determination of the following points:

1. The extent and location of pulmonary consolidation and amount of complicating pleurisy.

2. The temperature and condition of the heart as indicated by its rhythm, force, and amount of muscular element in the first sound.

3. The condition of the kidneys.

When the patient is admitted during the initial shock, full doses of morphia are administered hypodermatically, and repeated with sufficient frequency to relieve pain, during the first three or four days, or until the consolidation is complete.

Every patient is placed in bed, clothed in an oil-silk, flannel-lined jacket, which is made to come close up around the neck and to extend well down on to the trunk, and is put upon a diet of milk, vichy, chicken soup, and beef-tea, the selection of food being somewhat affected by the limits of hospital dietary. This much is routine.

When consolidation is confined to a lower lobe, the cough, expectoration, and pain moderate, the temperature below 104° F., while the pulse is regular with a strong first sound of the heart, and the urine is normal, nothing further is done beyond keeping the bowels freely open by some mild cathartic, as pulv. glyc. co.

The general treatment is then purely expectant. The temperature and pulse, however, are taken every four hours and the urine examined daily.

When the temperature reaches 104° F., or more, fifteen to twenty grains of quinine are given at a single dose. If at the end of six hours no reduction of temperature is produced, twenty grains are given in divided doses within an hour. As the drug used is "hospital quinine," these doses are possibly slightly larger than would be required in general practice. When they fail to reduce temperature equal parts of quinine and antipyrin are employed, but always in combination with some form of cardiac stimulant, as alcohol or caffeine. If the temperature is not affected by the second dose its use is not continued.

Indications for stimulants are found principally in the cardiac condition. Patients with consolidation at the apex, however, and alcoholic subjects are put upon stimulants from the first.

The cardiac stimulants used are alcohol, caffeine, digitalis, and ammonia, the first two being given with about equal frequency and for prolonged effect, while the others are used more for emergencies in the later stages.

An irregular, uneven, intermittent pulse, or weak or absent first sound are indications for stimulants to be given p. r. n.

It is seldom found necessary to employ measures directed especially to the cough. When this is distressing, with little expectoration in the earlier stages, opium is employed to mitigate its severity but not to check it entirely; later in the stage of resolution opium is avoided and carbonate of ammonia given in connection with infusion of serpentaria or wild cherry.

Pain is controlled early by opium and *large hot* poultices, later by poultices alone, if possible.

The earliest indications of renal complications are met by the ethers, infusion of digitalis, and nitroglycerine.

Sleeplessness is relieved by bromide and chloral (alone in robust patients), and with the addition of cardiac stimulants in alcoholic subjects.

Œdema is treated by dry cups freely applied over the entire chest, atropia hypodermatically, whiskey and digitalis internally, and the free inhalation of oxygen.

ST. LUKE'S HOSPITAL.

The treatment of pneumonia in DR. KINNICUTT'S wards in St. Luke's Hospital, during the past five years, has been wholly an expectant one. Absolute rest in bed in a *strictly* horizontal position, not only until defervescence occurs, but for several subsequent days, is a rule which is carefully observed in his service. The patients are rarely permitted to assume a sitting posture, even for the purpose of an examination. Several instances of sudden death from heart failure, in the period immediately following defervescence, on the patient attempting to rise, have convinced him of the wisdom of a routine rule of this kind. Light flaxseed poultices or a layer of cotton-wool covered with oiled silk, applied over the affected area, have been found serviceable in promoting the comfort of the patient.

During the developing stage of the pneumonic process (the first three or four days), opium in small doses (morphine one-sixteenth to one-eighth grain given by the mouth or hypodermatically, two or three times in twenty-four hours) has proved of great service in controlling the symptoms of nervous shock which so frequently obtain at this stage of the disease, and in affording relief to the suffering of the patient. It has also seemed to combat, in a measure, the tendency to heart failure.

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The employment of alcohol has been governed by the symptoms in individual cases. With the first indication of cardiac weakness, it has been the rule to institute its use in small doses and to watch carefully its effect. The pulse, the tongue, and the mental condition are accepted as guides for its continued use and for the amount to be given. Many cases have convalesced satisfactorily without its employment at any stage of the disease; again, twelve or more ounces of brandy have been given in the twenty-four hours, with marked benefit and recovery. Its use in diminished doses during the first days of convalescence has often been found advisable.

Caffeine and digitalis have been used very uniformly as heart tonics, and Dr. Kinnicutt believes with benefit. During the past several months, strophanthus, in the form of the tincture (five drops, three or four times in the twenty-four hours), has been employed with excellent results. He now prefers it to all other cardiac tonics in this disease. Antipyretics have seldom been employed.

On the temperature reaching 105°, a single small dose of antipyrine, eight to twelve grains by the rectum, has been given and repeated if necessary.

Aside from his disbelief in the necessity of the general use of antipyretics in pneumonia, Dr. Kinnicutt is convinced of the intolerance of large doses of the group of carbon compounds in this disease.

Finally, the alimentation of the patient has received very careful attention; the food has consisted of milk, in its raw state, or peptonized. The hospital records show the following satisfactory results under the above method of treatment.

Forty cases of acute lobar pneumonia were treated in the wards from December 1, 1884, to December 1, 1886. There were six deaths, 15 per cent. (excluding one which fairly should be disregarded, death occurring twelve hours after admission to hospital on the fifth day of the disease), all in complicated cases; the complications being: (1) amyloid spleen, liver, and acute nephritis; (2) chronic nephritis; (3) endocardial aneurism, mitral stenosis, chronic nephritis; (4) alcoholism; (5) urethral stricture with retention of urine; (6) uræmia and chronic nephritis. Serious complications existed in ten of the cases which recovered. Double pneumonia was present in three of these.

If the nature of the symptoms points strongly toward the development of pneumonia, although it is not yet perfectly evident, DR. BEVERLEY ROBINSON avoids the use of arterial sedatives like aconite, and prefers to order a few doses of ammonia, a small amount of opium (Dover's powder preferably), and a flaxseed poultice over the affected side. When the pneumonia can be clearly recognized by physical exploration of the lungs, moderate doses of digitalis (fl. extr. ℥j), and from two to four ounces of brandy or whiskey in the twenty-four hours, are prescribed.

A sufficient quantity of milk given regularly every hour, with an egg-nog, or beef extract, morning and evening, is allowed. Flaxseed poultices, containing a small proportion of mustard, are continued as a local application, and are renewed once every three hours. To retain their heat and moisture, they are covered externally with gutta-percha tissue or oiled silk.

If the bowels are constipated at the beginning of the attack, or subsequently, a dose of calomel is ordered (5 grs.), followed in a few hours by a saline aperient (℥ ss–℥j of Epsom salts). Whenever the patient is much prostrated, and the bowels remain torpid, a laxative enema is preferred. In cases where the bodily temperature rises above 103° Fah. in the axilla, five to ten grains of the sulphate of quinine by the mouth, every four hours, during the continuance of the period of relative hyperpyrexia, are ordered. Whenever the heart shows symptoms of failure, either by extreme frequency, weakness, or irregularity of its beats, the amount of brandy or whiskey to be given is rapidly increased, and strong, black coffee is also ordered.

In a very grave case of double pneumonia treated during the past winter, and in which a cure followed, the disease was combated during the acute stage almost entirely with brandy and black coffee, a half ounce of one or the other being given alternately every half hour. (The brandy should be old and pure.) Later, dry champagne was substituted for the brandy.

Some years ago, Kermes mineral (oxysulphuret of antimony) in a vehicle of syrup of gum with water, was frequently ordered by Dr. Robinson every two or three hours, in order to promote expectoration. Although excellent results were obtained from the use of this drug, for no sufficient reasons it was abandoned, and never since resumed.

If the heart action remains feeble during the stage of resolution, although the fever has disappeared during several days, he has found convallaria majalis an excellent substitute for digitalis. It agrees with the stomach better than the latter drug, and often acts quite as well as a heart tonic.

In the convalescent period, when the lung remains impervious to air during a considerable time, he has found repeated fly-blisters over the affected side extremely beneficial in clearing up the local intra-pulmonary condition. At the same time that blisters are applied, he orders small doses of belladonna, strychnine, and carbonate of ammonium in infusion of cinchona, repeated several times daily, so as to strengthen the heart's action, and tone up the general system. Whenever delirium is present, it is allayed with the ice-bag to the head, or by the internal use of ether (in perles), or of the bromides. Venesection for the asphyxia accompanying a dilated and over-burdened right heart, is occasionally advisable, and when performed under favorable circumstances, has been found useful. In his experience, however, the evident indications for this little operation have rarely occurred. The main source of danger in pneumonia, as a rule, seems to pertain to rapid or sudden heart failure. This accident may be prevented in many instances by the internal administration of repeated and considerable doses of black coffee and alcoholic stimulants.

MEDICAL PROGRESS.

THE IODOL TREATMENT OF LARYNGEAL TUBERCULOSIS.—LUBLINSKI is quoted as follows in the *Journal of Laryngology* for February, 1887:

Iodol is scarcely soluble in water, but is dissolved by alcohol and ether. Schmidt proposed a mixture of iodol,

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1 part; alcohol, 16 parts; glycerine, 34 parts. This is, however, too weak. Lublinski has used the powder pure for laryngeal insufflation. It causes no pain or cough, and it remains a long time in contact with the surface. The author has used it in the treatment of fifteen cases of tuberculosis. He administered one insufflation daily, or, in some cases, two or three times a week. Under its influence ulceration quickly heals, the base becoming clean and granulating, dysphagia disappears, and the patient's health improves. Tannin, boric acid, lactic acid, and other applications will produce this effect, but not so rapidly as iodol, the action of which is striking. The author gives details of two cases of tuberculosis in particular, in which iodol produced rapid curative effects. In both there was extensive ulceration. The author also regards iodol as serviceable in ozæna and scrofulous rhinitis, with ulcers on the septum.

IS IODOFORM ANTISEPTIC?—The widespread employment of iodoform as an antiseptic dressing may receive a check should the conclusions arrived at by MM. Heyn and Rovsing, of Copenhagen, be confirmed. These observers have (*Fortschritte der Medicin*, 1887, No. 2) been making experiments with iodoform to test its value as an antiseptic, which they point out is so generally accepted that the surgeon does not hesitate to employ a non-sterilized spatula or to insufflate ordinary air with the powder, procedures which he would shrink from employing were it not for the belief that the iodoform can destroy the germs adhering to the one or suspended in the other. Yet as iodoform is rarely used to the exclusion of other antiseptics (as carbolic acid or mercuric chloride), there is never much opportunity, clinically, of testing its germicidal properties. Mikulicz, in 1881, tested the action of iodoform upon putrefaction, but with no definite result; and Rummo's experiments in 1883 were complicated by his use of oil of turpentine as a solvent for the iodoform. Meyer found in one case of abscess that iodoform had no effect in reducing the virulence of the pus, and in another that it had a slight action. The results of the research pursued by MM. Heyn and Rovsing surprised themselves. Acting on the theory that it is through liberation of free iodine that iodoform enjoys its germicidal reputation, they prepared solutions of iodoform in olive oil and in serum, and, having sterilized them, mixed them with culture media, and studied the effect of cultures of various bacterial organisms in these mixtures, as well as under iodoform powder alone. They also experimented on rabbits by mixing inoculation fluids with iodoform. The details of the experiments need not be reproduced here; suffice it to say that in no case did the presence of the substance interfere with the development of microorganisms. So that they conclude that as an antiseptic its employment in surgery is valueless. But, more than this, its use is dangerous, for, as two of their experiments proved, iodoform itself may contain pathogenic microorganisms; and even if all care be taken to purify it, yet it may become the medium of the conveyance of pathogenic germs introduced into it through the spray or spatula. We trust that these experiments, which have received such prominence, will be repeated, for, if confirmed, we can imagine that the use of iodoform (apart from any other antiseptic) would in certain circumstances be serious. It would be deplorable if in any such case the material upon which the surgeon relies to protect his patient from bacterial invasion should prove to be the means whereby such invasion occurred. The writers of the article themselves advise that before using iodoform (which is valuable as a dressing on other grounds than as an antiseptic only), it should be disinfected in sublimate solution.—*Lancet*, Feb. 12, 1887.

A DOMESTIC NIPPLE-SHIELD.—DR. FRANK HOLYOKE states in the *Boston Medical and Surgical Journal*, Feb. 24, 1887, that a patient who suffered from extremely sensitive fissured nipples, invented for herself most perfect nipple-shields, by suspending from a ribbon about the neck, two deep, wire tea-strainers. They were held in place by a properly-fitting waist, and the nipples, thus covered, were entirely free from any irritation. She had, moreover, such a copious supply of milk, that it was otherwise quite impossible to keep the nipples dry. This was remedied by the ready passage of the milk through the wire gauze to a layer of absorbent cotton covering the tea-strainer. Not until she began to employ this method of protecting the nipples did the process of healing go on satisfactorily.

This young mother's clever device has been a source of great comfort in a number of similar cases which have since then come under Holyoke's care.

TREATMENT OF CYSTITIS:—RELIQUET recommends the following: Morning and evening a general bath of tepid water. An hour after the bath the following suppository should be introduced in the rectum:

Iodoform	gr. jss.
Ext. hyoscyami	gr. j.
Olei theobromæ	gr. xlv.

When urethral discharge exists this pill should be taken morning and night:

Terpine	gr. jss.

divided into ten pills.—*Les Nouveaux Remèdes*, February, 1887.

KNIFE WOUND OF THE LIVER; RECOVERY.—BURCKHARDT, of Stuttgart, reports in the *Centralblatt für Chirurgie*, No. 5, 1887, the following interesting case:

A laborer, aged twenty-seven, was admitted to the hospital, having received, one hour previous, while upon the street, a penetrating wound of the abdomen. The knife which inflicted this wound was of the kind used by butchers, its blade being one and a quarter inches wide and three and a half inches long.

On examination, the patient was found to have the appearances of ordinarily good health; he was conscious; pallid; pulse thready, 140; respiration costal; he complained of severe pain in the abdomen and left shoulder, and was greatly terrified. In the left mammillary line there was a sharply cut wound, one inch long, whose edges had been united with two stitches. The abdomen was somewhat distended, percussion note dulled; from the upper portion to the lower border of the fifth rib on both sides the percussion was tympanitic. The patient's clothing was plentifully blood-stained; his general condition pointed to continuing severe hemorrhage, which, in the opinion of the surgeon, made operative interference imperative. The patient was anæsthetized, and the wound enlarged; the cartilages

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of the ninth and tenth ribs on the left side were clearly cut obliquely, and on following the wound inward and backward it gaped, and on pressure a considerable quantity of dark blood escaped. The abdominal walls were immediately separated at their wounded edges between five and six inches, and the loop of intestine which lay nearest the wound, and was immersed in blood, was brought out and examined for the point of hemorrhage. The location of the wound pointed to an injury to a large artery of the stomach or mesentery, rather than to an injury of the liver, as the source of bleeding. When no such arterial wound was found, the liver was examined, and an incised wound, about one and a quarter inches long, was found in the left lobe, from which dark blood was escaping, as from a cavernous angioma. The index finger penetrated the liver toward the right and posteriorly from two to two and a half inches. The collapse of the patient forbade further exploration. The liver wound was accordingly tamponed with a strip of iodoform gauze of convenient width, and about four inches of gauze were allowed to protrude from the orifice of the abdominal wound. The loop of intestine which had been handled was washed with sublimate solution, replaced, and the abdominal wound, excepting its upper angle, was closed. At this upper angle were left the protruding gauze, and a large drainage tube, which extended to the upper surface of the liver. A thick antiseptic dressing was added. The patient reacted under stimulants; the pulse became normal on the third day; the temperature rose on the second day, and continued until the eleventh, in spite of large doses of thallin, at 103° F. at evening, with corresponding pulse frequency; pulse and temperature were normal after the eleventh day.

The general condition of the patient was strikingly good in comparison: symptoms of peritonitis were wanting, and only the vicinity of the wound was somewhat sensitive.

On the fourth day, synchronous with a rise of temperature, frequent cough developed with muco-purulent blood-tinged sputum, and dulness and bronchial breathing over the lower portion of the right lung. Diarrhœa and pain about the cæcum were present for some days. Icterus was absent; bile coloring-matter was found once in the urine. The lung complication was thought to be due to non-septic embolus.

At the first dressing, on the morning after the injury, a free discharge of blood was found; the dressings remained unsoiled until the sixth day, when a muco-biliary secretion stained the gauze, which was removed, and a drainage tube alone substituted. The discharge of bile increased to six drachms daily, began to decrease on the twelfth day, and ceased on the fifth week. At the end of the fourth week the gauze was removed from the external wound, and at the end of the ninth week a fistula only remained. This persisted for several months; the patient was finally anæsthetized, the fistula dilated, and a piece of gauze was found lodged deeply in the wound; after its removal rapid healing followed. In less than nine months from the time of the receipt of the injury the patient was at his work, free from all embarrassment. If the gauze had not been left in the wound, it is the opinion of Burckhardt that the patient would have recovered in eight or nine weeks.

TREATMENT OF EMPHYSEMA AND CATARRHAL BRONCHITIS.—DUJARDIN-BEAUMETZ recommends the following:

℞.—Potass. iodidi . . . . . ʒiv.
Aquæ . . . . . ʒviij.

Teaspoonful or tablespoonful in a glass of beer at the commencement of each meal. Also at each meal three capsules of terpinol. Baths of compressed air.—*Les Nouveaux Remèdes*, February 8, 1887.

MEAT EXTRACT IN ACUTE FEBRILE DISEASES.—It is plainly evident that we cannot suppose that the use of meat extract tends directly to nourish the febrile patient, because it contains neither albumen, fat, nor carbohydrates. But on account of the salts and extractive matter it does contain, the extract may, on the other hand, act as a stimulant and analeptic; and its stimulating action may prove prejudicial or beneficial according to circumstances. Wherever there is considerable irritability of the digestive tract, the administration in quantity of the extract is liable to produce flushings, palpitation, acceleration of the pulse, and still further deterioration of the appetite. When, however, there is not such condition of hyperæsthesia, and especially if the digestive functions are about to be restored, suitable quantities of the extract are not only tolerated, but are beneficial. It stimulates the appetite, and, on account of the needed salts it contains, acts as a restorative, and promotes plastic processes. The possibility of its irritant action should, however, not be forgotten.

The employment of meat extracts at the beginning of acute disease is at least to no purpose. If, however, at any time, symptoms appear rendering rapid stimulation necessary, as in aged persons (and in them possibly early in the attack), in febrile conditions following great loss of blood, in relapses, and in long-continued fever, when the nervous system, exhausted by the increased blood heat, sleeplessness, and deficient nutrition, requires a stimulant to enable it to continue its functions until the decline of the disease—in those conditions, as well as in cases of sudden prostration, a teaspoonful in warm water, or added to broth, administered several times daily, often proves to be of great utility. What has been said respecting meat extracts, applies to ordinary beef broth, though in certain respects in a less degree, inasmuch as the latter contains a proportion of gelatine and albuminous matter. The administration of meat broths, rendered still richer in albumen by the action of hydrochloric acid, or yolk of egg, is appropriate when a stimulating action is desirable, and when the condition of the digestion is such that nourishment of this kind is likely to be digested. In severe collapse their use is bootless, as absorption and assimilation are then nearly always extinguished.—*Journal of Dietetics*, January, 1887.

HYPODERMATIC INJECTION OF ATROPINE IN HÆMOPTYSIS.—HAUSMANN advises this method of treatment in desperate cases of hæmoptysis when the use of other remedies has failed. He reports three cases which illustrate this point. One case had suffered from twelve severe hemorrhages in six hours. After the thirteenth the writer injected one-twenty-fifth of a grain of sulphate of atropine; the hemorrhage did not recur. A

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similar result was obtained with a lady, in whose case ergotine and preparations of turpentine had failed.

In a third case of persistent hemorrhage through two winters, two injections, of one-twenty-fifth of a grain each, sufficed to check them.—*Revue Générale de Clinique et de Thérapeutique*, February 18, 1877.

ANTIPYRIN IN PHTHISIS.—Antipyrin has been shown to have various uses, but if the success which has been reported by Dr. Zakrzhevski in a paper contributed to the *Russian Military Medical Journal* attends the practice of other medical men, this drug will hereafter be looked upon as almost a specific. While under ordinary methods of treatment the mortality of phthisical patients in the Helsingfors Hospital was 50 per cent., during the eight months in which the antipyrin treatment has been carried out not a single case has proved fatal, many of the patients having, on the contrary, improved so decidedly as to be able to return to their homes. The author much prefers the hypodermatic method of administering antipyrin, as the effect is produced in less than an hour, whereas when the drug is given by the mouth no effect is produced for from one to three hours. The action of antipyrin is to increase the force of the cardiac contractions, and so to raise the blood-pressure. In phthisical patients it slows the pulse, but never quite to the normal rate. It also slows and deepens the respirations, and the digestive functions are improved. No albuminuria or other sign of renal disturbance was observed. With regard to the dose Dr. Zahrzhevski finds that it should be regulated by the strength of the patients. In a man with phthisis, who was still fairly robust, a full dose of ninety grains was required in order to produce the best effect; whereas, in greatly debilitated typhus patients ten or fifteen grains were quite sufficient, and in cases where there was decided exhaustion it was found that a dose of sixteen or seventeen grains was the largest that it was advisable to give.—*Lancet*, February 5, 1887.

AN INJECTING FLUID FOR ANATOMISTS.—IMADA, Professor in the Imperial Medical College, of Japan, has obtained good results with the following fluid in injecting cadavera: The following are the proportions for one body:

Starch	℥xx.
Aquæ	℥xx.

Mix thoroughly, and add the following prepared as directed:

Wheat flour	℥iij.
Vermilion	℥ij to ℥iij.

Mix these articles in a dry state, triturate together, and add water, ℥iij.

After injecting this mass an injection of solution of carbolic acid should be made to prevent putrefaction. The following has been found useful:

Acid. carbolic.	℥iij.
Glycerin.	℥jss.
Aquæ	℥iij.

—*Sei I. Kwai Journal*, January, 1887.

ON INTUBATION OF THE LARYNX.—The *Journal of Laryngology* for February, 1887, contains the following regarding BOUCHUT's early conclusions concerning intubation:

Referring to recent literature, Dr. Bouchut relates the fact that nearly twenty years ago he, being then struck with the terrible inefficiency of tracheotomy, sought some means of replacing this operation, and read at the Academy of Medicine (in 1858) a memoir "On a New Method of Treating Croup by Tubage of the Larynx." He there sought to prove that it was easy to practise tubage of the larynx by means of a canula fixed on the vocal cords and not interfering with the functions of the epiglottis. He added that it was possible to remedy in this manner the asphyxia of croup and other affections of the larynx, and that this method was to be preferred to tracheotomy. Trousseau then formulated this conclusion—tubage cannot replace tracheotomy except in rare instances, and this is the principal means of dealing with croups in which other medical treatment has failed. Bouchut's communication was treated curiously as an unpatriotic attempt to depreciate a method of treatment "entirely French," and the discussion which followed took the character of a veritable "execution." Recent publications have proved that the Academy was wrong, and that Bouchut was right.

HEROIC DOSE OF TURPENTINE IN CROUP.—In an obstinate and dangerous case of diphtheritic croup, which had extended into the larynx, after painting with boracic acid, and subsequently with a chloric acid application, without benefit, the child's condition becoming worse and worse, DR. LEWENTANER, of Constantinople, before resorting to tracheotomy, remembering a paper by Demlow in which turpentine was recommended in these cases, determined to give it a trial, and so administered with his own hands a teaspoonful of the pure oleum terebinthæ, giving after it some warm milk. In a quarter of an hour the labored laryngeal breathing had given way to normal respiration sounds. That night the child slept well and was quite free from the brassy cough which had previously been present. The next morning he was quite lively and was found playing with his toys. All trace of false membrane had disappeared from the pharynx, which merely presented a reddened surface. Convalescence was rapid and uninterrupted. The turpentine, however, caused an eruption on the face, trunk, and extremities, having much the same appearance as the rash of measles, but of a brighter red. The spots completely faded in two days, and were followed by no sign of desquamation.—*Lancet*, February 5, 1887.

ANTIFEBRIN IN THE ROYAL INFIRMARY, EDINBURGH.—Antifebrin has now been employed for several months in the Royal Infirmary, Edinburgh. It was used by Prof. Grainger Stewart shortly after the first account of its properties was published, and since then it has been largely used in more than one ward. The antipyretic qualities of the acetanilide have been most thoroughly tested, and it now occupies a high place among the febrifuge resources of the Infirmary. More especially it has proved superior to antipyrin, kairin, and thallin, in its freedom from accompanying disadvantages, such as the production of vomiting, rigors, and other discomfort, at the various stages of its action.—*British Medical Journal*, February 19, 1887.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, MARCH 12, 1887.

THE PROGNOSIS IN CHRONIC VALVULAR DISEASES OF THE HEART.

AT the last meeting of the British Medical Association there was a discussion on this subject, elicited by a remarkable report of SIR ANDREW CLARK on "Cases of valvular disease of the heart known to have existed for over five years without causing serious symptoms," which appeared in the *British Medical Journal* for February 5th, 12th, and 19th. From his case books, in private practice, between the years 1873 and 1886 he has extracted and tabulated 683 cases in which there existed chronic valvular disease, the presence of which was not indicated by symptoms, and did not sensibly interfere with health. In selecting these cases, it is distinctly stated that there were excluded all instances of mere murmurishness, all inconstant and intermittent murmurs, all which were doubtfully endocardial, all in the pulmonary and tricuspid areas, and all cases which, independently of cardiac examination, had subjective or objective symptoms of heart disease.

These 683 persons consulted Sir Andrew Clark for various affections unconnected with the heart lesions; thus 326 were suffering from disorders of the digestive system; 134 had disorders of the nervous system; 61 had rheumatic affections; 47 were suffering from disorders of the respiratory system; 30 from affections of the skin, and 23 had gout. Elaborate tables state the age, sex, valve affected, character of the murmur, probable cause, duration, habits of life, general health, and other points of interest.

He then proceeds to discuss the histories, habits, environment, and general condition of these patients in order to discover to what circumstances they owed immunity from the secondary consequences of valvular disease. As conditions which favor this, he gives, "a simple, regular, occupied, and moderately active life, early hours, a tranquil mind, disciplined control of the emotions and will; regular, but neither too frequent nor too full, supplies of fresh nourishing food; extreme moderation in the use of tea, coffee, and alcohol; avoidance of sudden and violent forms of exertion, of hurry and worry, of prolonged tension of mind and of serious and depressing cares and fears." Of circumstances which promote the consequences of valve disease, some act directly upon the heart, others on the general health. Chief among them are "irregularity of life, excesses and irregularities of eating and drinking, the too generous use of alcoholic beverages, the intemperate use of liquids in themselves harmless, the abuse of tea, coffee, and tobacco, excessive and insufficient exercise, anxious introspection and self-distrust, undisciplined emotions, prolonged and serious cares, inattention to the secretory functions of the body, and a sedentary, self-indulgent life." In a given case of valve disease, for example, mitral regurgitation, Sir Andrew Clark holds that the following conditions would justify the physician in permitting him to continue at his ordinary work, sustain an application for life assurance, or sanction marriage: good general health, and just habits of living; no special liability to catarrhal or rheumatic affections, the origin of the valve lesion independently of degeneration, the existence of the valve lesion without change for over three years, sound ventricles of regular action, sound arteries, free course of blood through the cervical veins, and freedom from pulmonary, hepatic, and renal congestion. Ten or twelve very interesting illustrative cases are given of persons living long and useful lives after the discovery by the physician of, what appeared at the time, serious heart disease.

Among the conclusions based on an analysis of these cases, the following will command the attention of those interested in examinations of the heart: That there are many persons with long-standing valvular disease engaged in the active business of life, who, without any symptom of heart disorder, have enjoyed good health and have reached an advanced age; that the mitral regurgitant murmurs so often encountered in chorea, for the most part, disappear within eight or nine years after the attack; that valvular inflammations and their effects arising in the course of rheumatic fever do sometimes disappear and leave behind no clinical evidence of their former existence, and that this occurring for the most part in the young, also occurs sometimes in the middle-aged; that the signs of valvular defects arising out of the degenerative changes of middle life do also, on rare occasions,

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disappear, and that, when circulatory and respiratory disturbances accompany their commencement, they sometimes subside, and permit of apparently complete readjustment.

To certain other points in this report, and in the discussion, we shall again refer, as the matter is one of special interest to every practising physician.

NEPHROLITHOTOMY.

IN a recent interesting discussion at the Clinical Society of London, recorded in the *Lancet* of February 19th, KNOWSLEY THORNTON reported seven cases of nephrolithotomy, three by the lumbar incision, with one death, and four by the combined ventral and lumbar incision, also with one death; the fatal result in both instances being due to suppression of urine. In his remarks he condemned the lumbar operation, and asserted that the combined operation was the proper one for the following reasons: That the affected kidney would always be found; a healthy one would never be cut into, and the one with the stone be left untouched; that the peritoneum would never be damaged without knowing it; that both kidneys and ureters could be examined through the ventral wound; and, finally, that, through such an examination, a decision could be reached as to whether nephrotomy or nephrectomy was the proper operation in each individual case.

In support of the first two objections to lumbar nephrolithotomy, a case was narrated which pointed to left renal calculus, but in which, by the combined incision, five calculi were removed from the right organ. The third objection, that the peritoneum might be opened through the loin, while among the possibilities, has no foundation in fact; while the fourth and fifth advantages in favor of the combined incision are partly true and partly assumed. As just pointed out, symptoms referable to one side might be present when the calculus was on the opposite side, and there can be no question that an exact diagnosis is essential to success. Palpation of the kidney through the abdomen, it must, however, be stated, may fail to detect the concretion; and, as Thomas Smith stated in the discussion, cases have occurred "in which the most careful palpation of the kidney, and even pressing it against a solid table, was unable to diagnosticate the presence of a stone in the removed organ."

While some of the objections to lumbar nephrolithotomy hold good, we take it that surgeons in general will scarcely be induced to relinquish the safer for the graver procedure, the latter of which has, moreover, the decided disadvantage of exposing the patient to the risk of ventral hernia. Up to the present date, 36 lumbar incisions have afforded 4 deaths, or a mortality of 11 per cent., while Thornton's 4 combined lumbar and ventral operations show 1 death, or a mortality of 25 per cent.

PAROXYSMAL CARDIAC DYSPNŒA.

ASTHMA, literally *panting*, occurs when the air or the blood enters the lungs with difficulty. Cardiac asthma, or dyspnœa as it is now more frequently called, is one of the most constant and troublesome symptoms of heart disease, and may be continuous or paroxysmal. With failure of compensation in valvular disease, a more or less continuous dyspnœa develops, and usually prior to this period there are occasional attacks of shortness of breath, induced by exertion, or flatulence.

In this number of THE NEWS, DR. LOOMIS calls attention to the more serious form of paroxysmal cardiac dyspnœa, commonly associated with myocardial rather than valvular changes, and which may prove suddenly fatal. Scarcely sufficient stress is laid upon the frequency of the occurrence of these attacks by systematic writers on the heart, and the cases reported by Dr. Loomis form a valuable contribution to our knowledge of the conditions under which they occur.

The most constant lesion is degeneration and thinning of the cardiac walls, more advanced on the right than on the left side. Often, too, the coronary arteries are occluded. The primary or predisposing cause is a gradual failure in the organic power of the heart, and "the exciting cause of the paroxysm is anything which will lead the heart-failure to an entire suspension of the cardiac circulation." In the majority of instances Dr. Loomis holds that the arrest is in the right heart, and in this agrees with Bramwell, who, in his too short description of this form of dyspnœa, ascribes it to sudden distention of the right ventricle and imperfect supply of blood to the lungs. It is a matter of common observation that these attacks are particularly apt to occur in the early morning, and patients will awake from a sound sleep in a paroxysm of most distressing dyspnœa, which may, indeed, as in two of the instances referred to in the paper, prove fatal.

THE TREATMENT OF THE THIRD STAGE OF LABOR.

EXPERIMENTS, conducted lately in some of the large lying-in hospitals of Germany, to determine the relative merits of the expectant or Ahlfeld's treatment of the third stage of labor, and of the expression of the placenta according to Credé's method, have seemed to demonstrate the superiority of the latter plan of treatment. AHLFELD, however, in the *Centralblatt für Gynäkologie*, claims that his method has not been fairly treated, and explains again that his plan is to leave the uterus untouched for an hour

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and a half after the birth of the child, and then, if the placenta has not been already expelled, to express it, while the well-known method of Credé, on the other hand, consists in expressing the placenta during one of the first two or three pains after the birth of the child.

The lesson to be learned by the practical physician from this discussion, is that here, as in so many other instances, his safest course lies in *medias res*. While it is usually unnecessary to express the placenta the minute the child is born, it is still less desirable to allow the woman to lie half delivered, in what has been happily called the squalor of labor, for an hour and a half. If a choice is to be made between these two methods, it will certainly incline more toward that of Credé than that of Ahlfeld.

QUACK ADVERTISEMENTS IN RELIGIOUS JOURNALS.

MEDICINE has no quarrel with theology. The physician and the religious teacher have their respective spheres, and neither conflicts with the other. Once, indeed, their functions were united, and he who cared for the soul also had charge of the body; but the separation of the offices has been a necessary result of the progress of knowledge. While each has his respective duties, they can often be mutually helpful, and any alienation between them is to be deprecated. Yet how often is occasion given for such antagonism, by clerical endorsement of quacks and of quackery! It is right, however, that we should here say that many years' observation has led us to believe that it is much rarer to find a Roman Catholic priest supporting irregular systems of medicine, or recommending nostrums, than it is to find a Protestant clergyman doing so. We believe this statement will be confirmed by others, no matter how it may be explained.

It is proper, too, that attention should be called to the readiness with which quack advertisements are admitted into religious journals. We have before us a weekly publication of one of the most intelligent and strongest Protestant denominations, and in this journal, which is doubtless read by thousands throughout the United States, there are between fifteen and twenty quack advertisements. Some of them are deceptively inserted with reading matter, as if part of it; thus "almost miraculous" cures by a drug, which most physicians know to have very slight therapeutic power, precedes a news item, and that item is followed by the advertisement of a "syrup" for teething children which depends chiefly for its power upon opium, a remedy which should not be employed without a physician's advice; it is stated that this medicine "softens the gums," an assertion which any man of sufficient intelligence to conduct a religious journal ought to know is a lie. Then follows a statement in regard to a remedy for consumption, "thousands of hopeless cases have been permanently cured," and this every intelligent man and woman in the land knows is false, yet there are hundreds of the poor victims of the disease, who are thus tempted into spending their last dollar to secure such a sovereign remedy. Then there is another preparation, a small particle of which is placed in each nostril, which, among other marvellous results, cures "hay-fever." We find, too, that some one advertises a certain cure for "even the worst cases of epilepsy," another who, to the disgrace of the clerical profession, or as a trick to catch the unwary, puts "Reverend" before his name, promises to cure any case of catarrh or bronchitis, "no matter how desperate," and then, as if to complete a triad of falsehoods, these two advertisements are followed by one in which "a positive and speedy cure" of goitre is promised.

But we desist from the sickening review of this prostitution of the religious press to falsehood and fraud. No matter how earnestly and eloquently a journal may plead for honesty and truth, if its advertising pages are occupied by such mischievous statements, its influence for good is sadly weakened. The editor, we will suppose, says "Let us pray," and some of the advertisers respond, "Let us prey," and he lets them! A clean religious journal, one from which all quack advertisements are excluded, is sadly needed, and the need ought not to continue long.

AT a recent meeting of the New York Surgical Society, DR. R. F. WEIR read a valuable paper on "Four Months' Operative Work at the New York Hospital," which may be found in the last and present numbers of THE MEDICAL NEWS.

Our object in calling attention to these articles is to commend the plan originated by Dr. Weir, and to express the hope that it may be imitated by other hospital surgeons. If it be generally adopted, an important collection of facts will be added to our common stock of knowledge; it should be distinctly borne in mind, however, that the true value of such contributions will depend upon accurate reports of minute details of individual cases—details which must embrace the symptomatology from the outset—as well as the manual procedures adopted when they vary from the ordinary methods. In such reports, too, nothing should be concealed. If a sponge or two be left behind in a wound, as happened in an operation for evacuating a perinephritic abscess, recorded by Weir, or other mishap be met with, it must be candidly stated. We are all fallible; accidents happen to the best of operators; and their reputation is rather enhanced than hurt by the open confession of their faults.

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AT a recent meeting of the *Société de Thérapeutique*, there was a discussion on the value of liquid vaseline, introduced by Meunier, of Lyons, as a medium for the hypodermatic injection of such irritating bodies as iodoform, iodol, thymol, menthol, etc., which are very apt to produce abscess. Meunier's formula has already been published in THE NEWS of February 26th. DUJARDIN-BEAUMETZ stated that he had found this plan very advantageous, particularly in using eucalyptol and iodoform. The injection is not painful, and it does not cause local trouble.

THE remarkable results which have followed operative interference in diseases of the bile passages are illustrated by the reports in THE NEWS of February 19th and 26th, of two cases by OHAGE, of St. Paul, to whom is due the credit of having been the first in this country to perform cholecystectomy. At a recent meeting of the Berliner Medicinische Gesellschaft, January 26th, LANGENBUCH, who devised the operation, stated that he had operated in twelve cases, of which two had died. This makes the total number of cases sixteen, with a mortality of two, a very much lower mortality than in cholecystotomy.

IN the Sundry Civil Appropriation Bill, Congress has granted an appropriation of $10,000 toward defraying the expenses incident to the meeting of the International Medical Congress at Washington this autumn. $35,000 was the amount asked for.

MR. J. S. MORGAN, the well-known American banker in London, has promised the munificent sum of £10,000 in aid of the funds of Guy's Hospital, on condition that the £100,000 required to put the institution into a state of thorough efficiency be secured by May 1st.

An Act to prevent traffic in impure and unwholesome milk, providing for the appointment of inspectors, and establishing penalties for infringements of the rigidly defined conditions governing the sale of milk, is now under consideration by the Pennsylvania Legislature.

Milk exposed to emanations or exhalations from the discharges or bodies of persons affected with any contagious disease, or milk from cows in a crowded or other unhealthy condition, or fed upon distillery waste, or any putrefying substance, is excluded from sale, together with milk in every phase of dilution and adulteration. The bill is defective in not defining the maximum quantity of water which may be present in milk without dilution, and in not making direct provision by which inspectors may be empowered to visit the dairies, but, despite these omissions, its tendency is good and the interests of the public demand that it should speedily become a law.

THE President failed to sign, before the adjournment of Congress, the Act to establish the order of promotion in the Medical Department of the Army, of which we gave an abstract in our issue of February 26th, and hence it falls.

THE University of the City of New York on Tuesday conferred the degree of M.D. on one hundred and fifty-one graduates.

THE Long Island College Hospital held its twenty-eighth annual commencement last week, and President Hutchison conferred the degree of M.D. on thirty candidates.

AN Act before the Legislature of New York calls for the revising and codifying of the multifarious laws that now stand upon the statute-books for the regulation of the medical profession. There are not far from twenty different acts, beginning with that passed in 1806, relating to the licensing and registration of the profession. As might be expected, there is no agreement or harmony between these laws, and even medical lawyers are befogged by their incompatibilities and contradictions. The time has come when a carefully considered codifying act will be useful, and it is practicable now to pass such an act; and the one above referred to would appear to be such, from the fact that it was framed by the legal adviser of the New York County Medical Society, who has had a vast experience in the courts in the prosecution of fraudulent practitioners, and in otherwise getting at the purport and intent of the laws. The proposed law aims to procure a registration of physicians who can present a good and sufficient form of credentials, and to reject those who cannot.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting March 3, 1887.

THE VICE-PRESIDENT, CHARLES CARROLL LEE, M.D., IN THE CHAIR.

DR. WILLIAM H. THOMSON read a paper on the

PATHOLOGY AND TREATMENT OF EPILEPSY, BASED ON NOTES OF SIXTY CONSECUTIVE CASES IN PRIVATE PRACTICE.

He related the case of a gentleman who was subject to sudden and transitory attacks of aphasia, always without any loss of consciousness whatever, and without the slightest sign of motor disturbance of any kind. The phenomena of an epileptic fit are usually described as consisting, first, of an initial aura; second, loss of consciousness; and, third, convulsions; but, not-

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withstanding the prevalent opinion as to the essential clinical characters of the disease, he believed this case to be one of true epilepsy.

He then proceeded to inquire what the essential and invariable element in epilepsy really is, and expressed his conviction that it is *suddenness*. Epilepsy, he said, is the single truly sudden disease. The only affections which resemble it in this particular are laryngismus stridulus and spasmodic asthma; but in them the suddenness of the attack is not absolute, as in epilepsy. Apoplexy, hemiplegia, and sunstroke cannot be strictly compared with it, as they are in reality accidents, and more or less permanent in character. The attacks of hysteria and of neuralgia are not nearly so sudden as those of epilepsy. Other affections are more or less progressive in their onset. The only apparent exception is angina pectoris; but this affection acts on the principle of shock. All recurring symptoms coming on suddenly, such as nausea, visceral disturbances, headache, etc., are ominous, as they may perhaps be the beginning of epilepsy. The importance of this element of suddenness, he thought, could not be overrated.

The *petit mal* he considered the most real, as well as the most objectionable kind of epilepsy. He then referred to the cell discharge or explosive theory of epilepsy, and quoted Hughlings Jackson in regard to it. The exhaustion of the cells of the sensorium, he thought, was the result of the discharge which had taken place. In this connection Dr. Thomson referred to Nothnagel's "convulsive centre," and said that if no form of epilepsy except the *petit mal* had ever been observed, he felt certain that the explosive theory would never have been proposed. In answer to the views of Jackson and Gowers, he would state that in every convulsive seizure a motor discharge is granted, but to say that the first event in epilepsy is a motor discharge is a very different matter. All motor phenomena except the voluntary, he believed, are under the control of sensory impulse, and a sudden suspension of the regulating sensory impression may result from various causes. Any irregular motor phenomena are, therefore, due to a loss of the customary sensory influence. This explains the clinical facts of epilepsy without the necessity of supposing any additional nervous force being called into action. It is comparable to the jar imparted to an ocean steamer when the propeller is lifted by the height of a wave out of the water; the customary resistance of the latter being temporarily withdrawn, but no additional power being imparted to the screw.

He then referred to pleuritic epilepsy, which has been known to result from the injection into the pleural cavity of weak solutions of iodine, carbolic acid, etc. In cases of this kind the face became pale, inspiration was suspended, and the pulse could be scarcely felt. Spasms, at first confined to one side of the face, afterward became general, and finally there was epileptic coma. In a number of cases death had resulted; but no lesion of the brain was discoverable at the autopsy. The effects here produced were certainly not due to the therapeutic agent employed, but were the result of a quite unusual impression on the nerves of a cavity wholly unaccustomed to this kind of an irritation. Of a similar character were the experiments of Brown-Séquard, who found that in guinea-pigs and some other animals, section of the spinal cord, or even of one or both sciatic nerves, was followed by well-marked epileptiform fits, which returned again and again, and could at any time be excited by slight irritation of the cheek or of the side of the neck.

Dr. Thomson considered the phenomena of epilepsy to be due to the effect of an afferent sensory impression, when there is some abnormal condition of the cells of the nerve centres. What this condition is, he was not prepared to say with any positiveness, but it seemed probable to him that it is one of malnutrition. It might be asked if he would assert that all cases of epilepsy are attended with sensory impressions, in the face of the well-known fact that in certain instances there were definite lesions of the brain present. The answer was, that we do not get rid of the sensory element when we enter the cranial cavity. There is a sensory as well as a motor aphasia. A syphilitic gumma of the brain may be as true an excitant of sensory irritability as an external influence; and the same is true of any source of irritation in the brain. He did not hesitate to acknowledge that a motor centre could be excited by the application of an electric current after trephining the skull; but the explanation of the phenomena noted he believed to be in the fact of a wholly unaccustomed irritation in a centre accustomed to act in response to sensory impressions. The hypothesis of a sudden impression of sensory functions, he believed, most fully explained all the phenomena of epilepsy.

Ever since he had become satisfied in his own mind that the lesion of epilepsy is to be found in the sensory, rather than the motor centres, Dr. Thomson said he had conducted his treatment in accordance with this view, and as a result he had grown less sceptical than formerly of the advantages of treatment in this disease. The first thing that he aims at is the improvement of nerve-nutrition, and by far the best agent for this purpose at our command is cod-liver oil. It increases the number of blood-corpuscles more rapidly than iron, and has a greater effect upon nutrition than any other remedy. It is particularly indicated in malnutrition of the nervous system, because the nerve-texture is normally richer in blood-fat than any other tissue of the body. Hence it is to be regarded as the great prophylactic in all neurotic families. In epilepsy he never fails to prescribe it as regularly as he does in phthisis. Another advantage that it has is, that it counteracts in a very successful manner the debilitating effects of the bromides. Phosphorus he had also found of much service in improving nerve-nutrition, and he usually employed it in the form of the officinal syrup of the hypophosphites, with the addition of one-fifth part dilute phosphoric acid. An important part of the treatment he considered the total exclusion of all butcher meat for a period of two years; though poultry and fish are permissible. Animal diet he believed predisposes to convulsions in direct proportion to the quantity in which it is used. The tendency to convulsions in the carnivorous animals, and the absence of this in herbivorous, is due, in his opinion, to the respective diet of each class. Another thing to be avoided, is eating fast, as the too rapid mastication and swallowing of food seem to act directly on the convulsive centre of the medulla

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oblongata. It is possible that the habit of eating too fast might thus induce confirmed epilepsy.

Like all other physicians, he had come to place great reliance on the use of the bromides, which so successfully control peripheric irritation. If any one doubted this, let him give thirty grains of bromide of potassium to a patient with an intolerant throat in whose case he wished to make a laryngeal examination. In the long-continued use of the remedy the great thing is to control the effects of bromism.

Dr. Thomson had found that in forty per cent. of the cases observed by him there was persistent cortical irritation, as indicated by muscular twitching during sleep, and in this class of cases he is in the habit of employing, in addition to the bromides, the bichloride of mercury, perhaps alternating it occasionally with oleate of mercury by inunction. This mercurial treatment he finds a very useful adjuvant to the bromides.

He uses belladonna or zinc oxide in all cases in which the attacks show any connection with disturbances in the alimentary canal. In this connection he remarked that bad breath is often a prodrome, and that he uses turpentine freely when there is gastro-intestinal irritation. When there is reflex irritability he uses chloral hydrate or Hoffmann's anodyne in addition to the bromides. Digitalis he employs in all cases characterized by vascular disturbance, or where there is an involuntary discharge of urine during the epileptic attack. The published experience of Dr. Newington, who found that hot mustard baths are very useful in acute mania by cutting short the attack, and inducing sleep, has led him to employ a red pepper pack at night (one drachm of capsicum being used to the pint of hot water for this purpose), in a certain proportion of cases. In one instance, at his college clinic, a patient, who ordinarily had two epileptic attacks a day, did not have a single one for some weeks after this measure was resorted to, the disease being completely arrested by the peripheral excitation thus secured. These points show, he thinks, the direction in which efforts should be made by which better results might be ex pected in the future, and thus relieve the treatment of epilepsy from the grievous burden of empiricism which it has so long borne.

DR. L. PUTZEL said that from a clinical point of view he did not think that Dr. Thomson's assertion that the attack is always sudden could be maintained. It is a well-established fact that there are a certain proportion of cases in which there are prodromata, often lasting for two or three days, or longer, such as digestive or mental disturbances. In regard to Hughlings Jackson's views, if he remembered them rightly, that authority simply claimed that there is an explosive discharge of nerve-cells in epilepsy, but did not imply that this discharge is from the motor cells especially. In fact, Dr. Putzel could not see how, in view of his well-known opinions upon this disease, he could confine the phenomenon to the motor cells, since he claimed that such conditions as hemicrania, for instance, belonged to epilepsy. Furthermore, he held that one aura, which may be purely mental, may, at times, constitute the whole attack.

Dr. Putzel thought that in *petit mal* paralytic symptoms are very rare. Paralytic trouble, in his experience, is usually met with after prolonged convulsions, and occurs as the result of the exhaustion incident thereto. Besides, he could not understand how the sensory impulse inhibits the motor, as stated by Dr. Thomson. In regard to so-called pleuritic epilepsy, it is not proved that the convulsions in the cases referred to were epileptic. They might, perhaps, be epileptiform, but unless a convulsive habit is established, they could not, in his opinion, be said to constitute true epilepsy, In the same way, he did not think that the convulsions of children in teething, the attack being merely the result of a temporary local irritation, could be called epilepsy; although they are often epileptiform in character. Belladonna he had used principally in nocturnal epilepsy, and in conjunction with the bromides. He agreed with Dr. Thomson, that epilepsy is a disease of impaired nutrition, and that cod-liver oil is often, therefore, of very great benefit in the treatment.

DR. MARY PUTNAM JACOBI made a few remarks, in the course of which she alluded to the confirmation of Dr. Thomson's views in regard to the danger of eating fast afforded by Lauder Brunton, who had also noticed the effect of rapid mastication in exciting the already excited centres of the medulla. As to the location of the origin of epileptic attacks in the brain, Gowers had found that one-fifth of all auras consisted of auras of the special senses.

DR. WM. H. DRAPER said that, as regards the pathology of epilepsy, the author of this paper did not seem to have thrown much light upon that obscure subject. He had confounded with the disease convulsive affections, which he did not think could be at all regarded as epileptic. As Dr. Putzel had remarked, he had spoken of convulsions produced by a variety of peripheral irritations as if they were true epilepsy, and in this opinion he could not agree. In infants and others we so often meet with conditions in which convulsions are so easily induced and which so readily disappear under treatment adapted to remove the source of irritation and improve nutrition, that he did not think that these temporary conditions could be properly compared with that grave affection which we call epilepsy.

In regard to the management, he said he agreed with Dr. Thomson as to the treatment of the impaired nutrition which was so common by cod-liver oil and tonics. In addition to improving the general nutrition, it is necessary to study very carefully the peripheral irritation which provokes the attack. In a large number of cases this is to be met with in the gastro-intestinal tract. He could not say that he agreed with Dr. Thomson as to the danger of animal food in epilepsy. On the contrary, he was inclined to think that the origination of an attack is much more likely to follow the too free ingestion of starchy food and sweets, or of the fermented liquors. He had, therefore, preferred to have his patients use principally animal food and milk, and take a diminished quantity of the carbo-hydrates; and very good results had followed the adoption of this plan of diet.

The next most important thing is the administration of some drug having the effect of diminishing the extreme excitability of the nervous centres, which is always the essential prerequisite of an attack of epilepsy. For this purpose there is nothing, in his opinion, to equal the bromide of potassium. These were all the elements of a rational treatment of this disease, and

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yet he presumed that it was the experience of every physician present that there are certain cases in which all the measures referred to are of little value. Bromide of potassium sometimes signally fails unless pushed to the point of producing profound bromism; so that patients would rather have their fits at regular intervals than endure the wretched hebetude which the drug induces.

DR. E. DARWIN HUDSON, JR., said that his idea of epilepsy was, that in it there is a disturbance of the equilibrium of the nervous centres. The attack is characterized, in the first place, by a withdrawal of mental control and unconsciousness. He had met with but one case of convulsions in which consciousness was retained. They were epileptiform in character, and ended fatally, and even here consciousness was lost some time before death. In epilepsy he believed there was cerebral anæmia, and an explosion due to disturbance of the vascular equilibrium. From a clinical standpoint, it is often difficult to say what constitutes epileptiform attacks, and what true epilepsy. Successive seizures produced by peripheral irritation, not infrequently seem eventually to result in epilepsy, if they are allowed to go on without interference. He agreed with the other speakers, that the bromides constitute the most reliable medicinal means of treatment.

DR. THOMSON said that he did not intend to imply that epileptic attacks have no prodromata. On the contrary, it was extremely common in his experience to meet with patients who were almost always aware of the imminence of the attack. But a prodroma is not the attack itself, and it was this that he particularly referred to when speaking of the suddenness of the affection. He had studied this matter very carefully, and his conclusion was that epilepsy is to be distinguished from all other diseases by its suddenness. In regard to Hughlings Jackson's views, he said that he never understood his statement as referring *only* to motor discharges; but it certainly was a fact that he especially dwelt upon the explosion of motor cells. Instead of regarding sensory impulses as being of a stimulating character, Dr. Thomson said he was inclined to look upon these as a regulating force. Hence the study of the connection between any motor disturbance and the antecedent sensory impression, seemed to him of importance, as indicating the direction in which advances in our knowledge of epilepsy are to be looked for.

In regard to his confounding all sorts of convulsions with epilepsy, he remarked that Dr. Putzel, and others who had spoken, did not regard the convulsions of dentition as of an epileptic character; but he had compared these attacks very carefully with those of acknowledged epilepsy, and he had been entirely unable to discover any difference whatever between the two. First births, and especially when the children are males, he went on to say, give a larger percentage of cases of epilepsy than subsequent ones, on account of the greater compression of the brain to which the infants are subjected during the process of parturition. He then related a case of his own, in which, on account of a contracted pelvis, there was great delay in the delivery of the child, and after it was born he had been obliged to use oxygen gas for three hours, in order to resuscitate it, and when it was nine months old the child began to have convulsions, and these continued from time to time until its death, at the age of seven years. It was never able to walk. He studied the attacks in this case with great care, to see if there was any difference between them and the ordinary convulsions of children from dentition, and he became convinced that a more mythical distinction could not exist. It was simply a distinction without a difference. Here was exactly the same class of phenomena, and he would, therefore, be exceedingly obliged to Dr. Putzel and Dr. Draper if they would point out to him in what particular an epileptiform convulsion is different from an epileptic convulsion. As to the pleuritic cases which he had mentioned, if they were not epilepsy, what was the affection from which the patients suffered?

DR. DRAPER replied that in saying that convulsions were epileptiform, he implied simply that they had the form of epilepsy, but not the substance. He thought there is a great difference between these temporary seizures and the regular recurrence of seizures in true epilepsy. In the form of the attack, he was quite willing to acknowledge that there is no perceptible difference.

DR. A. D. ROCKWELL read a paper on

THE VALUE OF ELECTRICITY IN THE TREATMENT OF EPILEPSY.

Having mentioned that he had read a preliminary paper on this subject before the Medical Society of the County of New York in 1878, he said that there is a certain proportion of cases of epilepsy which fails to receive permanent benefit from the use of the bromides, as usually employed, but which apparently completely recover after the assistance of electricity has been invoked, in connection with the bromides. Epilepsy is, in this respect, analogous to chorea. Arsenic is universally acknowledged to be a remedy of the greatest value in this affection; but there are certain cases in which it fails to afford relief, unless its use is supplemented by electricity.

DR. MEREDITH CLYMER, in some most excellent remarks on the treatment of epilepsy, stated that he had never heard of a permanent cure of the disease under the use of the bromides, either alone or in combination. While this might be regarded as an extreme statement, the suggestion that the best results will follow only when we call to our aid every measure that will tend to increase and develop vital powers generally would commend itself to all. It is not alone, therefore, on the theory of a special influence on the nerve-centres, or even the cerebral circulation, that he employs electricity as an adjuvant to the bromides, but also because of its undoubted and powerful constitutional effects. It is a tonic, but it has both stimulating and sedative effects. In this, as in various other forms of central disease, he almost always associated and alternated central galvanization with general faradization.

Central galvanization is analogous to the effect of the bromides, producing a profound tendency to drowsiness. In some cases sound sleep has been induced with the subject in an upright position, while receiving the current through the brain. He recalled one patient under treatment by central galvanization, who was repeatedly put to sleep within a minute after the beginning of the application. In epilepsy there is a disturbance of the centres of the cerebro-spinal system. There is a hyper-excitability of the nerve-cells, which is dynamic,

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rather than physical; and this hyper-excitability is kept in check by galvanism as readily as the bromides.

In one case which he mentioned, the patient, a female, had been under observation for fifteen years. Central galvanization and general faradization had for several years been employed, with intervals of rest, and for four years she had now been entirely free from an epileptic attack, while her mental and moral characteristics, which were formerly very much impaired, had been completely restored. Other satisfactory cases were also related, and in connection with one of them Dr. Rockwell incidentally stated that he had found the effect of the bromides in epilepsy to be enhanced by the addition of one or two grains of chloral hydrate to each dose. The total number of cases in which he had employed electricity was twenty-eight; but ten of the patients had abandoned the treatment too early to allow any conclusions to be drawn from them. In three cases electricity seemed in no way to assist the action of the bromides. In one of these the attacks came on both by day and night, and in the other two occurred only in the daytime. In eight cases the use of electricity was attended with a certain amount of benefit, varying in different instances, but not to such a marked degree as in the remaining seven cases. In two of these the patients recovered entirely, and in the other five there was very decided improvement.

The conclusions arrived at by Dr. Rockwell were somewhat as follows:

First. Electricity possesses a certain value in the treatment of epilepsy. It is not claimed that it alone can cure the disease, but in many instances it is of great service as an adjuvant to the bromides.

Second. In the nocturnal variety its good effects are especially marked.

Third. The methods of application should be central galvanization and general faradization.

Fourth. It is important that the agent should be administered with great care. Anything like a shock to the nervous system should be avoided, and the applications should not be continued too long at a time.

Fifth. The treatment should be continued, with suitable intermissions, for at least two years after the last occurrence of epileptic symptoms.

DR. THOMSON said that he had had no experience with the use of electricity in epilepsy, but he should suppose that its efficacy depended on the peripheral irritation excited by it, as in the case of the red pepper pack to which he had referred.

DR. ROCKWELL said, in reply, that the benefit from this agent is not due to peripheric irritation, for if this were the case we should employ the faradic current and not the galvanic. The effect of the latter, as he had observed in the paper, appeared to be analogous to that of the bromides.

THE NEW BUILDING FOR THE ACADEMY.

Before the Academy adjourned the following resolution was adopted:

Resolved, That the Trustees and Council be, and are hereby empowered to purchase a site or building, or to erect a new building for the Academy, when such a course shall be considered expedient.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, February 8, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

FOUR MONTHS' OPERATIVE WORK AT THE NEW YORK HOSPITAL.

(Concluded from page 277)

DR. WEIR stated that on the kidney a series of highly important operations have been resorted to. The first case of the number to which he asked attention is one of

LACERATION OF THE KIDNEY WITH PERINEPHRITIC ABSCESS AND RENAL FISTULÆ,

which occurred in a youth of twenty, who three years before coming under care had fallen a distance of six or eight feet and struck his right side heavily on an iron bar. He had, following this, severe hæmaturia for three weeks, when fever, local pain, swelling, etc., showed that suppuration was progressing in the right lumbar region. An incision was then made by my colleague, Dr. W. T. Bull, and a large amount of pus evacuated. A sinus persisted for a long time, which, healing at times, would break out again and freely discharge matter. Since July last he has been unable to get about by reason of the pain in the flank and also in the rectum. In the left iliac fossa were found much inflammatory hardness and tenderness running upward to a large fistulous opening between the middle of the iliac crest and the ribs. Through this opening a probe could be passed nine inches downward to the iliac fossa. Above the opening near the spine was another through which a probe entered inward four inches toward the kidney. From four to six ounces of pus were daily discharged. The patient was pale, but in fair condition, and anxious to have relief from the persistent suppuration. By the rectum nothing could be felt. The urine was slightly albuminous, but otherwise the examination was a negative one, with the exception of a few pus cells. The amount discharged per diem was between fifty and sixty ounces. No urinary salts were found in the pus discharged from the fistulæ.

A curved incision starting from the upper fistula and running through the lower one and anterior rib, somewhat like the one advised by König, was used to expose the parts, but the tissues were so matted together by old inflammatory action as to yield but little room for manipulation. Instead of finding himself, as the way was finally enlarged by stretching and cutting, in the expected cavity of a suppurating kidney or thickened perinephritic abscess, Dr. Weir came down upon a thin-walled cavity larger than his fist through which could be easily felt the movements of the abdominal viscera beyond. Considerable bleeding occurred from the cavity, and it was temporarily stopped with sponges while the fistulous tract in the groin was opened at its terminus just above Poupart's ligament; a second tract was then found running from the first downward to the pelvis, but too far back to be tapped. A drainage tube was placed in each of these tracts, the sponges removed, and the cavity inspected with the aid of the electric lamp. This discovered that a rent three inches long had been made through the membrane so that the

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liver and gall-bladder were plainly exposed; this, probably, would not have been detected had it not been for the lamp. It was sewn up with catgut sutures. Careful examination by Dr. Weir and his colleagues failed to find any remains of the kidney, which was also sought for through the peritoneal opening before it was closed.

The exposed cavity was packed with iodoform gauze and the usual peat bag and other antiseptic dressings over all. Death took place four days later with marked rise of temperature commencing about forty-eight hours after operation, with persistent vomiting and almost total suppression of urine.

At the autopsy there were no signs of peritonitis; the left kidney was in a condition of acute suppurative interstitial nephritis and on its surface underneath the capsule pus was diffusely distributed. At the upper border of the tenth rib on the right side surrounded by dense connective tissue was seen the upper third of the right kidney, its lower two-thirds having been destroyed. This kidney stump formed the upper limit of the abscess cavity which had been opened at the operation. In it were found two sponges which had been left *in situ*, one of which was firmly adherent. It should be stated that on the day of his death, the date of the last dressing, the wound was in an odorless condition. This cavity was bounded internally by the duodenum and spine, anteriorly by the ascending colon and hepatic flexure, and below it communicated by a tortuous sinus with a pus cavity in the true pelvis behind and alongside the bladder and rectum, and extended also through the right sacro-sciatic notch and terminated externally to this in a cavity the size of a hen's egg.

The second case of renal surgery was a huge suppurating kidney, for which

NEPHROTOMY

was done. The man, aged thirty-seven, had had, remarkably enough, symptoms of trouble in his side for only four weeks, and these were of moderate severity, but associated with great weakness, and rather rapid emaciation, and no chills, and no special urinary manifestations. In the right flank was a tumor, painful, the size of a cocoanut, projecting half-way to the ilium, with a deep sense of fluctuation, which the corroborative use of a hypodermatic needle proved to be from retained pus. An incision was made, under the idea that the swelling was more probably a perinephritic abscess, from the distal end of the twelfth rib downward, and, instead of reaching evidences of inflammatory thickening as the cut was deepened, only the translucent peritoneum came into view; through which was seen the tumor moving perceptibly up and down under the action of the diaphragm. Another incision at a right angle to the first, and running toward the spine and up to the quadratus muscle, soon exposed the tumor in another place, when the purplish color proved it to be a largely distended kidney. On opening this with a scalpel over eight ounces of fetid yellow pus were discharged, and the finger in exploring could feel sundry depressions corresponding to cavities in the cortical portion of the kidney. It was not washed out, but two large rubber drainage tubes inserted, and dressed antiseptically. Though the discharge at first was very free, and required frequent changes of dressing, it has of late rapidly diminished, and the patient's condition correspondingly improved, though, at times, a strong urinous odor is perceived in the discharge. Occasionally the cavity is washed out with Thiersch's boro-salicylate solution, as safer than carbolic and sublimate solution.

The case, however, that excited the most interest in the whole of the present operative group from its nature, treatment, and result, has been one of

ABDOMINAL NEPHRECTOMY FOR A HUGE ADENOMA,

a disease which has necessitated removal of the kidney in only one (Czerny) of Gross's collection of 49 cases of nephrectomy for neoplasms. Another has since been published by Albert. Czerny's (*Deutsche med. Wochenschrift*, 1881, No. 32) was in the right kidney of a child, eleven months old. Death took place on the second day from peritonitis. Albert's (Brodeur, *De l'intervention Chirurgicale des les Affectiones du Rein*, 1886, p. 222; also *Wien. med. Presse*, 1885, No. 9) was in a woman, aged forty one, who, two years previously, had had a fall, and subsequently frequent hematuria, etc. Pawlik catheterized the ureters, and differentiated the diagnosis. The tumor, the size of a child's head, was extirpated by a posterior incision. The patient recovered. A third case is also reported by Schönborn (De Jong, *Beiträge zur Nieren extirpation*, Heidelberg, 1885; also *Centralbl. f. Chirurg.*, 1885, S. 24, Beilage). This occurred in a child of three years, and was removed with a successful result.

The present case has the following history. A burly man, a butcher by occupation, was seized suddenly, three years ago, with cutting pain in the left lumbar region, and at that time passed a quantity of bloody urine. This was probably an attack of renal calculus, for other paroxysms came on with not very long intervals, and he frequently noticed gravel to be passed, and indeed, he showed Dr. Weir some fifteen or twenty calculi, principally phosphatic in character, when he was first brought to him by his physician, Dr. Maynard, of this city. In the past year, however, these intermittent attacks have culminated in a persistent pain in the left lumbar region, which is aggravated by sudden motion, by riding, etc. Walking will, moreover, bring on or increase his hematuria. He has lost sixty pounds of flesh in the last two months, and has become blanched from suffering and loss of blood. In the left flank is to be felt a tumor, extending from three inches external to and on a level with the umbilicus, upward and backward under the ribs. This tumor is slightly movable. On bimanual examination the mass seems to be nearly seven inches thick. The amount of urine passed varied from thirty-five to sixty ounces per diem, and on examination showed nothing beyond what might be due to the blood mixed in it.

Under the idea that the kidney enlargement might be due to retained calculi, an exploratory vertical incision, as for nephrotomy, was made in the left loin December 11, 1886, and the kidney, covered only by a thin layer of its fat capsule, exposed by tearing through this. No calculus could be felt, though the posterior surface was pretty thoroughly palpated, and the anterior surface only to a limited degree. A puncture with a needle was made in several places, but did not discover any calculus, nor any cavity. The bleeding was free from the punctures, but easily checked. This examination also showed that the kidney was too much enlarged to

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be removed by the usual lumbar incision. It was determined to do nothing further at present, but when the loin wound should have healed that the tumor (for the diagnosis was that of probable sarcoma) should be extirpated by abdominal section. And in the meanwhile, as a corroborative diagnostic means, the quantity of urea daily passed was taken a number of times, as has been suggested by Thiriar, who has noticed that in malignant growths this secretion is materially lessened. It was found in this patient's case to range from 219 to 240 grains per diem.

On the 20th of January, 1887, the patient was again etherized, and by an incision five and a half inches long to the outer side of the left rectus muscle, and starting from the free edge of the ribs, the abdomen was opened, intestines pushed aside with large flat sponges, and the peritoneum covering the tumor incised on the inner side of the descending colon, and the kidney reached. A few minutes' dissection with the finger allowed the root of the kidney to be exposed, when this was easily surrounded with a heavy silk ligature by means of Mott's aneurism needle, and the vessels and ureter tied off *en masse;* a heavy clamp was then applied between the ligature and the kidney, and the latter cut away, and after some tedious tearing of cicatricial adhesions on its posterior surface resulting from the first incision, it was removed. The clamp was then found to have slipped, and allowed a vein which had entered the kidney above the ligature to bleed freely. This showed most happily the control the anterior incision gives in this respect. The bleeding vessel was distinctly seen, and in a moment controlled by a fresh clamp and ligated. Very little blood was lost, though, during the stripping process, which was conducted between the capsule and its fibro-adipose envelope for a short time, quite a smart oozing of venous blood took place. A long pair of dressing forceps was then forced from in front through the old cicatrized track to the loin, and a large sized rubber drain carried in from here to the cavity left by the extracted kidney. The divided and torn edges of the peritoneum, which had covered the kidney, were united by numerous Lembert sutures, thus inverting their edges, and after a final toilette of the peritoneal cavity, which was only so in name, as nothing had entered it, it having been so thoroughly protected by the sponges, the parietal peritoneum was sewn together with catgut, and the abdominal wall closed by silver wire sutures supplemented by additional catgut ones. As some oozing of blood persisted from the drainage tube, several yards of sublimate and iodoform bandage were stuffed into the posterior cavity, and over all peat bags and other antiseptic dressings applied.

The patient's progress was extremely satisfactory; no peritoneal symptoms, and only a persistent gulping for seventy-two hours; no attempt was made to put food into the stomach, and for a week nourishment was administered by the rectum. Temperature, at the highest, in the mouth, was 101.7° F. The urine, for the first twenty-four hours, amounted to but eight ounces, and it was very bloody, due to the operative pressure on the kidney. The second twenty-four hours it rose to twenty ounces, and was of a dark amber color, with only traces of blood in it; urea, 1.01 per cent.; sp. gr. 1.020. On the third day it amounted to forty-nine ounces; and on the fourth to eighty-eight ounces; after which it gradually subsided to about fifty ounces; but the urea still kept lower than normal, but more than before operation. On the sixth day the dressings were changed, and wire sutures removed from the anterior wound, which had healed primarily, and from the posterior opening the gauze bandage stuff was pulled out, everything being sweet and aseptic. On February 8th, the patient was taken out of bed; he now eats heartily, and is on the road to health.

An episode occurred at the termination of the operation that excited some anxiety. On telling the nurse to count her sponges at the close of the operation, she reported that the two flat ones were missing, that there were seven instead of the nine original ones; in a second count, the same result was had, and this original number was corroborated by the superintendent of the training school, who was present. The wound, which was then partially closed, was opened, the hand introduced, and the abdominal cavity hunted over, and Dr. Bull, who was assisting, was requested to verify the search. No sponges were found in the examination, and the closure of the wound was proceeded with. The means for caring for the soiled towels, etc., and for washing sponges, seemed to be so exact, and to be free from possibility of the missing sponges being lost anywhere else than in the patient's belly, that Dr. Weir felt much concern during the first three or four days on this point, being prepared on the first symptom of peritonitis fairly manifesting itself, to open again the abdominal cavity, and resume the search. This feeling was present because, though an examination was found to be negative when made by two surgeons, yet he was conscious of the difficulty of absolutely excluding their presence, as he could not be certain of such regions as the lesser omentum and behind the liver. Events proved, however, that the sponges went elsewhere, although the possibility of organization of an aseptic sponge may be insisted upon by some.

The kidney, when removed, weighed twenty-one ounces, and measured nine by five and a half inches. Its shape was rendered irregular by several projections from its surface, which were marked on its posterior aspect. While the kidney itself was much enlarged, there could be seen after section that its substance had been invaded by an adenoma (as it was pronounced by the pathologist of the hospital) the size of a fist, encroaching upon, but not bursting by ulceration into the pelvis. The mucous membrane of the latter was thickened, and up to the point where severed from the ureter numerous miliary granules were found behind it. Uninvolved kidney tissue was found between the ligature and the tumor.

THE SURGERY OF THE EXTREMITIES

comprises thirty-two operations.

In speaking of the subject of

NECROSIS OF THE LOWER END OF THE FEMUR,

Dr. Weir said that he had made, and seen others also make an error in treating this affection, which he thinks he has now learned to avoid. It is, when much thickening exists at the lower end of the femur not to be content with the piece of exposed dead bone that may be seized and extracted, but to chisel boldly into the thickened end of the bone, even though no opening be found running into it. In very many instances further

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trouble may be found existing either in the shape of minute, spiculated, necrosed pieces, or large pieces surrounded by a spongy suppurating involucrum, or even central spongy necrosis, with or without bone abscess running dangerously near the joint line. All these he has found when least expected. He felt warranted, therefore, in urging this point.

In five cases where extensive openings had been made into bones, recourse was had to the suggestion made public by Schede, in 1885, but originated several years earlier by Neuber, and also by Dr. R. T. Morris, of this city, of allowing the cavity to fill up with blood, that this may organize under the antiseptic dressings applied. Either the wound of the soft parts must be sewed up to a small slit, or left entirely open and covered with a layer of gutta-percha tissue, with a hole in it. This is intended to allow the surplus to flow out and also to prevent the dry bandage entirely soaking up the clot. In three out of his five cases (which can be increased to five out of seven, counting two private cases), success was had on the prompt organization of the clot and rapid healing of this wound; that under the old plan of stuffing heals but slowly from the bottom.

ANTISEPTIC IRRIGATION OF THE KNEE-JOINT

with 1 : 20 carbolic solution, was reported for chronic hydrarthrosis of the knee as successfully treated.

Likewise a quite extensive

CHRONIC TENDO-SYNOVITIS OF THE PERONEAL TENDONS

was treated by opening above and below and drainage without a very satisfactory outcome; the reason therefor being microscopically shown to be, as König has taught us, owing to tubercular infection of the sheath. It will require opening throughout its whole extent, and thorough dissection, scraping and cleaning with subsequent iodoform packing to effect a cure.

RESECTION OF THE WRIST-JOINT,

after Lister's method, had been done for early tubercular arthritis. In this instance more than usual trouble resulted from the hemorrhage so often induced by the use of Esmarch's rubber bandage. The case promises well, though the long pressure to control the bleeding caused a slight cellulitis of the forearm. Dr. Weir has since in one instance put into use, with gratifying effect, the suggestion made at the Society by Dr. Lange, when using the rubber anæmia, that one should control the rush of blood into the limb after the removal of the constricting band by the pressure of an assistant's finger on the main artery above, so that the full blood supply is only gradually admitted to the limb, and in this way permit contraction of the temporarily paralyzed vessels.

RESECTION OF THE ASTRAGALO-SCAPHOID ARTICULATION

was performed four times in two patients for

AGGRAVATED FLATFOOT.

In three of these operations adherence to Ogston's original plan was followed, of shaving off, after opening the joint, the articular cartilages with a chisel, and then fastening the bones together by ivory pegs driven through the scaphoid bone into the astragalus; in the remaining operation, a little more than the articular cartilage was taken away, and the use of pins was omitted (Stokes's method). The rectified position was maintained easily by a plaster bandage without the support of pegs. The result in the first case, now over four months, is excellent. The last case is too recent to be quoted. Dr. Weir did this for the first time in 1885, in one foot, resorting to, without intending it, Stokes's method—that is to say, removed more than he started out to do, and in the second foot conducted the operation more strictly after Ogston's directions; only he found that his ivory pegs had been soaked all night in sublimate solution, which rendered them so friable that he could not use them, and so he drove in two gilt nails which had been cleaned by scrubbing and immersion in carbolic solution, but were stained by a previous employment in a compound fracture. Whether it was from this or some other cause, the foot went sadly to the bad; the other, without a peg, progressing happily. Severe tarsal inflammation ensued and the young man only got off with a total resection of the scaphoid and astragalus, and parts of the cuboid and os calcis, leaving him, however, in the end a serviceable foot, but prolonging his convalescence for months.

The rather rare operation of

AMPUTATION AT THE HIP-JOINT

was performed by the long anterior and short posterior flap in a man aged forty-six, for huge recurring sarcoma of the soft parts of the left thigh. Beside a large mass reaching nearly to the trochanter in the side and behind, there were several small growths lower down on the face of the thigh. The original removal had been done three years ago by the late Dr. Post, of this city. Recurrence took place within six months of this operation. The main tumor is now some ten inches in diameter. The hemorrhage at the hip amputation was admirably controlled by Lloyd's method, which is to fasten tightly a doubled rubber bandage around the hip so that it rests on the inner side of the tuberosity of the ischium, and its ends are secured above the ilium at about its middle. Pads are placed under the compressing band over the lower end of the external iliac artery and over the sciatic notch. It appears to be the best and least hazardous of the many methods advised to control the blood supply in this high amputation. Next to it in value he places Davy's rectal rod. Not more than two or three ounces of blood were lost in this case. The patient did well without any temperature elevation for forty-eight hours, when signs of gastritis and tympanites came on without diarrhœa, and he died four days after the operation. At the autopsy the stump was found to have progressed satisfactorily. A large aortic aneurism was found and the stomach was studded with patches ranging in size from a silver quarter to a silver dollar, in which the mucous membrane was blackened and destroyed; their edges were sharply defined and of embolic origin, and supposed to have originated from the aneurism. The intestines were distended and much congested in defined areas.

His impression is, that the toxic effect of the bichloride can probably be blamed; at least he conceives that he committed an error which he had in other instances sedulously kept in view. After the stump had been finally closed, to make certain that the two drainage-

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tubes were free from coagula, he allowed a 1 : 5000 sublimate solution to flow in through one tube, distend the stump, and to flow out through the other tube, when the dressings, also of sublimate and quite freshly made—*i. e.*, damp—were applied in large quantity. He spoke of this injection of a closed wound as faulty, since he can attribute the production of carbolic acid poisoning to a similar method several years since. The gastric appearances somewhat resembled those shown in a case of death after operation for removal of the uterine appendage, although there frank peritonitis coexisted. In this instance to cleanse the vagina after the use of a tampon, a rather strong sublimate solution was directed by the house surgeon. It is well known that absorption of this drug goes on with special aptitude in the genital passages of the female. Dr. Weir remarked that in spite of the many advantages of corrosive sublimate as an antiseptic, more mishaps had occurred to him in using it than were met with in the days of carbolic acid, and that with iodoform, since he has learned to use it discreetly, no harm has come at all beyond an occasional local irritation.

THE ANTISEPTIC METHOD.

All fresh wounds are irrigated freely with 1 : 5000 or 1 : 10,000 sublimate solution. Catgut, either sublimated or Kocher's, is used. Iodoform when used is either dusted on the line of union of a wound, or on the sublimate gauze or peat bag, which is placed first over the wound. No iodoform gauze (*i. e.*, made by rubbing in iodoform in a sticky gauze of any kind) is employed, except to stuff cavities. Where primary union is sought, it will, if used, often shut up the secretion, and provoke trouble. Where special promptness of union is desired, he much likes to place over the wound a layer of sublimated felted spun glass, a wrinkle of Kümmel's. Over the antiseptic gauze is laid a heavy layer of absorbent cotton, and all secured with sublimated gauze and canton-flannel bandages. Drainage tubes are of rubber; they are kept in a sublimate solution, but they are dipped in iodoform dissolved in ether just before being inserted in a wound. They are removed as early as possible, from the second to the fifth day.

As to the surgeon himself and his assistants; thorough scouring of hands with soft-soap, and subsequent immersion in 1 : 1000 sublimate solution, or 1 : 20 carbolic acid solution, is resorted to. The instruments are scrubbed and boiled, and then put in carbolic solution. Sponges are washed in soft-soap, and kept in strong sublimate solutions, 1 : 2000; all soiled with bad pus or discharges, are at once destroyed.

By mentioning, in closing the list, one case of the very small

OPERATION OF COTTING'S FOR AN INGROWING TOE-NAIL,

it is hoped that the artistic diminuendo will be appreciated. Minor operations have purposely been omitted, save in one or two instances where their introduction would justify a remark. The operation of Cotting's often fails, and he has learned from his clinical assistant, Dr. Hartley, how to do it better than he formerly did. He now cuts off much more of the swollen flesh alongside the nail, plunging the knife vertically downward, and sometimes inclining it toward the centre of the toe, so that a generous lump can be taken away, and the incision should run well back beyond the matrix. An iodoform dressing is applied and over the cotton a firm bandage, and with this the patient can keep on walking with the toe exposed in the shoe. In a week usually the dressing is changed.

Lastly, of the 399 patients treated there were 7 deaths, or 1.75 per cent. mortality, and in each of these an operation had been done; in 5 of the 7, death occurred soon after the operation; in two other cases death resulted some time later, as in the patient with tumor of the brain, who lived two and a half months after the operation; and the case of hernia who died three weeks after the operation from pneumonia and Bright's disease. In the 105 cases operated on, there was 6.66 per cent. mortality.

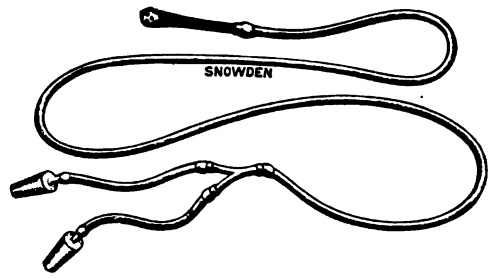
NEW INVENTIONS.

A SIMPLE HOT-WATER VAGINAL DOUCHE.

BY GEORGE ERETY SHOEMAKER, M.D.,
OF PHILADELPHIA.

HOT-WATER vaginal injections now constitute one of the most necessary elements in the treatment of many uterine diseases, yet it is found practically difficult to secure their thorough and systematic application.

If a patient, not under the care of a nurse, be sharply questioned, it will often be found that the general inconvenience of injections as ordinarily carried out, together with the fatigue to the hand of using a bulb syringe for fifteen or twenty minutes continuously, is such that they are either imperfectly applied, or are often omitted. The accompanying cut represents a simple form of douche, much appreciated by my patients. No fatigue is involved in its use, while the temperature of the water may be regulated at will and constantly increased.



It consists simply of rubber tubing in the form of the letter "Y," armed at one end by an ordinary syringe nozzle, and at the ends of the branches by rubber corks which fit respectively into the hot- and cold-water faucets of the ordinary bath-tub. On properly opening both faucets, water of any desired temperature will run directly through the tubes and will issue from the nozzle. It will occur to anyone that, after changing the nozzle, the instrument may also be used for douching hemorrhoids while the patient is seated over the adjoining closet; vaginal injections should only be administered while the patient lies on the back in the tub, with the hips elevated by a small stool or cushion.

The instrument may be obtained from Mr. Snowden, of this city.

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CORRESPONDENCE.

THE PREPARATION OF BLOOD SERUM.

To the Editor of THE MEDICAL NEWS,

SIR: Allow me to add a few remarks to those made by Dr. A. C. Abbott, in THE MEDICAL NEWS of February 19, concerning the preparation of blood-serum. Several years ago I noticed the advantages to be derived from simply sterilizing the liquid blood-serum and not coagulating it until needed. Using the Salmon culture tube, in which the evaporation is reduced to a minimum, I have been able to keep tubes of liquid serum for many months without any appreciable evaporation and concentration. Even with coagulated serum, the water of condensation remains for months in these tubes, and only the upper narrow portion of the medium shrinks somewhat from loss of water. If I were to use the ordinary test-tubes plugged with cotton I should certainly adopt Dr. Abbott's procedure, as the evaporation is exceedingly rapid even in the d'Arsonval thermostat. When serum is kept liquid for some time and then coagulated in the same tube, it is necessary to shake down or break up the thin pellicle of cholesterin which forms after a few weeks. If the serum is solidified without using this precaution, the entire pellicle will form part of the culture surface. This must be detrimental to any bacterial development.

I have not had any trouble in sterilizing blood serum obtained from blood (beef) collected in slaughter-houses. My only precaution to those collecting it was to wait until a considerable quantity had flowed from the wound.

I have found that turbid serum will clear up very well in the laboratory refrigerator. It is not the very low temperature, but its constancy and uniformity that favor subsidence of the blood-corpuscles. This fact is easily brought home to us when a cylinder of very clear serum taken from the refrigerator becomes turbid in a few moments. The change of temperature causes currents in the liquid and consequent rise of the sediment. The precaution taken by Dr. Abbott of packing in ice seems to me very desirable, as it avoids even a suspicion of bacterial growth, besides furnishing a uniform temperature.

Another precaution which physiology teaches us, but which the beginner may overlook, is to avoid a too low temperature while the clot is forming and contracting. That of a good refrigerator seems to be satisfactory.

Very truly,

THEOBALD SMITH, M.D.

DEPT. AGRICULTURE,
WASHINGTON, D. C., March 3, 1887.

NEWS ITEMS.

WET-NURSING AT RANDALL'S ISLAND NURSERY.—During the past two years the experiment has been tried, in consequence of the large mortality that existed at the Randall's Island Nursery, of placing a number of the children from that institution under the care of nursing mothers, at their homes in and near Mount Vernon, Westchester County. The Commissioners of Charities and Correction now keep from fifty to sixty of them in the country, and the death-rate has been reduced among these infants from thirty per cent. to about five per cent. The cost *per capita* is $13.50 a month, while at Randall's Island it is $7.73. The children are under the personal supervision of Dr. Robert T. Howe, of Mount Vernon; and, once a month, the paymaster from the City Controller's Department pays off the women at his office. Additional provision is also to be made at Randall's Island, where a pavilion adjoining the present buildings is to be erected, at a cost of $25,000. This will accommodate from 1500 to 2000 adults and infants, and will relieve the present overcrowded condition of the Nursery.—*Boston Med. and Surg. Journ.*, March 3, 1887.

ASSES' MILK FOR INFANTS.—The Administration of the Assistance Publique has decided to employ asses' milk at the Hôpital des Enfants Assistés for infants suffering from hereditary contagious diseases. Owing to the dangers incurred by women in nursing such children, the Administration substituted goats' milk for human milk; but the infants did not thrive upon it. The administration has now provided ten asses, which are kept in the stables of the hospital, with their young. Each ass is capable of nourishing three children besides its own young for the first three months, and two children for the two following months. After this period, it is capable of nourishing one child until the ninth month. Eight children are being nourished in this manner at the present time.—*British Medical Journal*, February 19, 1887.

THE INFECTION OF WET-NURSES BY SYPHILITIC SUCKLINGS.—Professor Fournier, of Paris, in a clinical lecture, recently gave the history of a case in which an apparently perfectly healthy wet-nurse became, a fortnight after commencing her duties, the subject of an ulceration on the nipple, subsequently recognized as syphilitic. This, in the meantime, was naturally communicated to the infant. On inquiry, no history of syphilis could be traced, either on the part of the nurse or the parents of the infected infant; but it was ascertained that the nurse had already suckled an infant which had succumbed to symptoms of undoubted syphilis. At the time, therefore, that she accepted the second engagement she was already infected, but the disease was in the period of incubation. Dr. Fournier said he had met with fourteen cases of this description, and advised greater care in the selection of wet-nurses. Two precautions were specially indicated, namely, to engage no woman who had suckled any other than her own child; and if this were not practicable, to require a medical certificate of the last infant's immunity from contagious disease.—*British Med. Journ.*, Feb. 19, 1887.

VENEREAL INFECTION PRONOUNCED A CRIME.—Some consternation may be caused among a certain class by a recent judgment of Justice Wills of the Central Criminal Court, England. The charge against the prisoner was on two counts, one with having carnal knowledge of an imbecile woman, aged eighteen, and another, under 24 and 25 Vict., c. 100, s. 47, for a "fraudulent assault" upon the same woman, occasioning her actual bodily harm. The harm done was the wilful infection with syphilis. The prisoner was found guilty on both heads, and sentenced to two years' imprisonment for the first, and five years for the second. The most remarkable piece of information is that a man who has imr

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sexual connection with a woman, knowing himself to be suffering at the time from gonorrhœa or syphilis, is liable to prosecution and penal servitude.—*Canada Lancet*, March, 1887.

PRESERVATION OF A HUMAN BODY AFTER DEATH.—Indianapolis, Ind., has been considerably excited of late over an instance of remarkable preservation of the human body after death. A lady died in that city some thirty years ago, and her body, incased in an iron coffin, was placed in a vault. A recent examination showed that the body was in a wonderful state of preservation. The *Indiana Pharmacist* says that even the color of her eyes, a deep blue, could be recognized. The hair had grown to a length of two feet. It was supposed by the sexton to have turned to stone, but further investigation showed it to have become changed into that peculiar substance known as adipocere. Adipocere (*adeps*, "fat," and *cera*, "wax") has somewhat the appearance and consistence of cheese, and is a compound of oleic and margaric acids with an alkali. It has usually been formed in bodies that are buried in the earth, and moisture has been supposed to be essential in its formation. In the instance just referred to, the body was in a dry vault. There seems to be no fixed time necessary for this change to take place. One instance is reported of an infant which had been but three months in a cesspool, in which adipocere had formed, while in other cases years seem to have been necessary. —*Science*, January 28, 1887.

AN AMERICAN JOURNAL OF PSYCHOLOGY.—A quarterly journal under the above title will shortly be issued under the editorship of G. STANLEY HALL, Ph.D., Professor of Psychology and Pedagogics in the Johns Hopkins University.

It will contain original contributions of a scientific character; papers from other journals, including translations, and digests and reviews. While articles of importance in allied fields will be welcome, the main object of the journal will be to record the progress of scientific psychology.

CONSUMPTION AND PRICE OF COCAINE.—Dr. Squibb, of Brooklyn, has made and sold 76½ pounds of cocaine since October, 1884, using in the process more than 22,000 pounds of coca leaves. The price has fallen from $1.25 to 1½ cents per grain.

LABORATORIES IN BARCELONA AND PALERMO.—The Spanish Government intends to erect a laboratory for research in bacteriology in Barcelona, under the control of Ferran.

A Pasteur Institute will be built and equipped by the Italian Government in Palermo, the director of which will be Professor Celli.

AMBULANCES FOR CONTAGIOUS DISEASES IN PARIS.—There has been, for several years, in Paris, a gratuitous service for conveying to the hospitals those ill with the contagious diseases. To obtain such transportation it is only necessary to inform the police, when a telegram is sent to the ambulance, which responds at day or night. Physicians are required, in ordering an ambulance, to specify the nature of the disease with which the patient is affected. These ambulances are well warmed and equipped, and carefully disinfected after each use.

PROFESSOR MIKULICZ, of Krakau, has been called to Königsberg to succeed Professor Schönborn.

A NEW DENTIFRICE.—The *Gazette Hebdomadaire* contains an article by M. Paul Vigier on the "Use of Steatite as a Tooth Powder." Many years back M. Vigier discovered that the addition of powdered talc to water prevented the deposit of calcareous salts in boilers. Applying this fact to dental therapeutics, M. Vigier has devised a new dentifrice, which, he says, prevents the formation of tartar. The formula is as follows: Powdered steatite, fifteen drachms; desiccated alum or cream of tartar, one and a quarter drachms; powdered cochineal, two and a half drachms; essence of peppermint, twenty drops. Any other perfume may, of course, be substituted.—*Lancet*, February 5, 1887.

FRANCESCO MAGNI.—This distinguished Italian ophthalmologist died at San Remo on February 2, 1887, aged fifty-nine. He was Director of the Anatomical School at Florence and afterward Professor of Ophthalmology at Bologna. He travelled extensively, and his contributions to the literature of ophthalmology are able and numerous.

He was also an eminent politician, having been Senator of the Kingdom in 1876, and rendered many services to the cause of State medicine.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 1 TO MARCH 7, 1887.

GREENLEAF, CHARLES A., *Major and Surgeon.*—Ordered for duty in the office of the Surgeon-General of the Army.—*S. O. 41, A. G. O.*, February 18, 1887.

HUNTINGTON, D. L., *Major and Surgeon.*—Will be relieved from duty in the office of the Surgeon-General, to take effect March 1, 1887.—*S. O. 41, A. G. O.*, February 18, 1887.

GRAY, WM. W., *Captain and Assistant Surgeon.*—Leave of absence for seven days is extended twenty-three days.—*S. O. 13, Department of Dakota*, February 21, 1887.

CASTOR, WM. F., *Captain and Assistant Surgeon.*—Granted leave of absence for one month on surgeon's certificate of disability.—*S. O. 25, Department of Texas*, February 24, 1887.

JOHNSON, P. W., *Captain and Assistant Surgeon.*—Ordered for temporary duty at U. S. Military Academy, West Point, New York.—*S. O. 51, A. G. O.*, March 4, 1887.

EDIE, GUY L., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, to take effect about March 1, 1887.—*S. O. 27, Department of Texas*, February 28, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FIVE WEEKS ENDING MARCH 5, 1887.

GUITERAS, JOHN, *Passed Assistant Surgeon.*—Granted leave of absence for twenty-one days, February 28, 1887.

PETTUS, W. J., *Assistant Surgeon.*—To proceed to Charleston, South Carolina, for temporary duty, February 28, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MARCH 19, 1887. No. 12.

ORIGINAL ARTICLES.

NOTES UPON THE USE OF CORROSIVE SUBLIMATE IN OBSTETRICS.

BY EDWARD P. DAVIS, M.D.,
OF PHILADELPHIA.

IN the six years which have elapsed since Koch brought prominently to the notice of the profession the bichloride of mercury as an antiseptic,[1] it has been widely used in obstetrical and surgical practice, superseding, in many cases, carbolic acid and other less powerful agents.

The researches of Koch showed that in solutions of 1 to 1000 corrosive sublimate killed, by one immersion, the spores of anthrax bacillus, one of the most resistent of the pathogenetic microörganisms. It was also shown that in solutions of 1 to 50,000 the same effect was produced by a longer immersion. In 1 to 5000 a single immersion was generally, but not invariably, sufficient to kill all spores of bacilli; and the limit of efficiency by renewed and prolonged use was between 1 in 20,000 and 1 in 50,000. Forster[2] showed that micrococci were destroyed, when upon the hands, by a solution of 1 to 1000, and also by a solution of 1 to 5000; these experiments were made by dipping the fingers in peptonized meat solutions and Koch's culture gelatine.

The practical advantages of sublimate may be summed up as follows: in solutions of equal antiseptic strength sublimate is less irritating than carbolic acid (Fürst, *Die Antisepsis*).

The urethra, urinary bladder, and peritoneum are, however, much more susceptible to irritation than the uninjured mucous membrane of the genitalia. The use of the sublimate has resulted badly in a case cited by Krukenberg and Ribbert (*Centralb. für Gyn.*, 1885, No. 2), when it produced a violent inflammation when brought in contact with the peritoneum. The solution used was 1 to 5000. Sublimate is free from color and odor, which is at once an advantage and a danger. It is a good deodorizer, and it also checks secretion. It is less volatile than carbolic acid; this is, however, offset by its readiness to combine with other substances. A small bulk of sublimate is needed, and it is cheap.

Experience has shown the disadvantages attending its use to be as follows: most important of all, its poisonous properties; this point will find amplification further on. Its disinfectant power is greatly lessened by the presence of free albumen. Koch has noticed this; Mikulicz[3] has for this reason raised the question whether sublimate should not be reserved for cleansing the hands and the unbroken skin. Fluid which contains septic matter can be removed by preliminary irrigation, and a disinfectant may follow, but the successful disinfecting of necrosing tissue in the uterus is not always efficiently done by sublimate, for the reason just stated. Lister has found that sublimate forms an insoluble albuminate of mercury which is irritating, and this fact has led him to combine sublimate with ammonium chloride (*Pharmaceutical Record*, May 15, 1886).

Repeated irrigations with sublimate solution result in the accumulation of a compound whose mercurial concentration increases (Fürst, loc. cit.) by the formation of the albuminate and other compounds. A minor inconvenience, which can probably be readily avoided, is that reported by Jeannel in the maternity of Saint Eloi (N. Y. *Medical Record*, July 3, 1886). He found that cocaine was decomposed by sublimate solutions.

Sublimate damages instruments. In comparison with carbolic acid, it much more readily decomposes; it is peculiarly liable to enter into combination with a number of foreign substances. Rubber, sugar, extracts of various kinds, fats, and other substances promote its decomposition. This is especially true of sodium chloride, a moderate amount of which greatly increases the absorption of the mercurial. The constant presence of sodium chloride in the animal body suggests at once its influence upon the absorption of corrosive sublimate.

In spite of these disadvantages no agent has apparently produced such strikingly brilliant results, as shown by statistics, as has sublimate. This is seen in the early reports of clinics. Winter, Leopold, Szabó, Bidder, Olshausen, Iverardi, Keller, Schauta, Tarnier, and Garrigues reported a great diminution in septic cases of all kinds; in some of these clinics the solution of 1 to 5000 was used for vaginal douches, and stronger solutions to cleanse the hands and external genitalia; in others the douches were of the stronger solutions also.

It is not to be expected that the widespread use of so powerful an agent could be devoid of danger, and the number of cases of accidents reported is quite sufficient to cause us to criticise the methods of using sublimate, and endeavor to assign it to its proper place in obstetrical practice.

Bull's collection of fatal cases[1] and Butte's notes of twenty fatal cases[2] have been sufficient to arouse attention, while instructive isolated cases, like that reported by Fleischmann,[3] have even led to a feeling

[1] Mitth. d. Kaiserl. Gesundheitsamtes, i. 1.
[2] Centr. f. klin. Med. Nr. 18 und Zeitschrift f. Ther. v. J. Weiss, Nr. 10, 1885.
[3] Langenbeck's Archiv, xxxi. 3.

[1] Med. Record, July 10, 1886.
[2] Nouvelles archiv d'Obstétrique.
[3] Centralb. für Gynäkol., Nov. 20, 1886.

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that this agent should be banished from among the antiseptics used in midwifery.

While we cannot at all agree with Thorn, that vaginal or intrauterine douches of sublimate solutions should never be given, it is interesting to note the results which can be obtained when sublimate was not used. The statistics of Ehrendorfer, of the Second Clinic in Vienna, are interesting in this particular. The material from which these statistics were taken was used extensively for clinical teaching by bedside instruction in "touch courses."

Seven hundred students availed themselves of these advantages in three years.

The lying-in ward occupied the former site of an old pest-house, and beneath it ran the sewer of neighboring infantry barracks; it formed a part of a large general hospital. The nurses in attendance were, many of them, of very ordinary intelligence, and incapable of carrying out a system of treatment at all complex. The patients furnished examples of the results of ignorant practice among outside midwives, and also exhibited the deformities common among a poorly nourished population.

Pathological labors were not infrequent, and hence operations were often performed. Summarizing briefly the results of the years 1882, 1883, and 1884, Ehrendorfer reports 2898 births, with mortality of 0.51 per cent.; 2669 births, with mortality of 0.33 per cent.; 2778 births, with mortality of 0.32 per cent. Two Porro operations and one Cæsarean section entered into the statistics of 1884. Vaginal and intrauterine douches were never given without a positive indication. The antiseptics used were carbolic acid and iodoform; no pad or occlusion bandages were employed.[1]

This treatment is, essentially, thorough external cleanliness, non-interference with the normal puerperal state, and antisepsis with the agents mentioned. It is interesting to know that a year ago sublimate, 1 to 1000, was introduced in this clinic for cleansing the hands of those manipulating the patients; and while the custom of non-interference still prevails, the statistics have become better, a result attributed to the mercurial. These results do not represent ideal antisepsis, but are to be studied as showing the value of certain features in this mode of treatment; they lack the benefit derived from a proper use of sublimate.

As aiding in arriving at a correct understanding of the proper use of the mercurial, let us consider some of its untoward effects.

It has been supposed that only in the case of abraded surfaces could intoxication with solutions of 1 to 1000 and 1 to 2000 occur. Fleischmann, however (loc. cit.), reports a fatal case from vaginal injections before labor, when the vagina was probably intact. While it is true that an amount of the solution may have entered the uterus and have been retained there sufficient to have caused intoxication, yet all ordinary means, successful in many other cases, were employed to guard against this accident, and such entrance of sublimate solutions to the partly dilated os uteri has doubtless frequently occurred without intoxication. A fact of importance in this case is that the patient was suffering from diarrhœa previously acquired, and this would indicate a susceptibility on the part of pregnant women suffering from intestinal disorders to mercurial poisoning.

Fleischmann's case is especially of interest as a case of intoxication in a pregnant, but non-parturient woman. Recent experiments by Doléris and Butte[1] were made upon animals by giving vaginal injections of sublimate to non-pregnant bitches, and also by wounding the mucous membrane and skin, and injecting these wounds. The solution used was that of Van Swieten, 1 to 1000 of corrosive sublimate. The experiments upon wounds were not limited to dogs, but included rats and rabbits also. The first experiments were two in number, and consisted of allowing one quart, and sometimes more, of the solution to irrigate the vagina of a healthy animal, in one case for eight consecutive days, several times daily. Diarrhœa was in each case produced, with a slight rise of temperature, both of which symptoms ceased without the cessation of the injections. The surface of the mucous membrane became dry, pallid, and its elasticity was much diminished.

The next experiments were upon wounds produced for the purpose in the subcutaneous tissues of the back, in the abdomen, the thigh and the groin. It was noticed that when the wounds were of such a nature that the solution did not accumulate, but merely irrigated the parts, the ill effects produced were limited to diarrhœa of moderate severity. When, however, the irrigation was prolonged, or the wounds formed pockets or recesses, allowing the accumulation of any quantity of the fluid used, fatal results followed in a period of time ranging from ten to twelve days. The experiments were ten in all, and from them the performers drew the following conclusions, which they divide into experimental and practical.

Sublimate irrigations, 1 to 1000, upon healthy, intact mucous membranes, are not apparently dangerous, and excepting the minor inconveniences which followed the first injections, they are inoffensive. Sublimate irrigations, 1 to 1000, when employed upon large wounds, produced sanguinolent diarrhœa, with tenesmus, violent colic, vomiting, albuminuria, progressive enfeeblement and death, preceded by a reduction of temperature.

The anatomical lesions found by post-mortem examination were hyperæmia, submucous hemorrhages and necrosis of the mucous membrane of the large intestine.

The kidneys were in a condition of acute parenchymatous nephritis, the straight tubules filled with calcareous deposits.

These observations correspond to those of Prevost, Charrin and Roger.

The excess of urea in the blood indicates uræmia as the cause of death.

The practical conclusions which the experimenters adduced were the following:

Sublimate injections must be used with great

[1] Archiv f. Gyn., xxvi. ii.

[1] Archives d'Obstétrique, Dec. 25, 1886.

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caution; in cases where wounds and lacerations of the vagina and uterine neck exist they should not be employed.

The elevation of temperature observed in the case of women was not present in animals, because the latter were not also laboring under a process of septic infection from necrosis of bruised and lacerated tissues; intestinal necrosis is also much more severe in the case of the human subject.

Elevation of temperature is not a symptom of intoxication, but, on the contrary, lowering of the temperature is a well-established symptom.

Daily examination of the urine should be practised when sublimate is used; albuminuria is an early symptom of intoxication, as is the yellow discoloration of Fehling's solution when heated with the suspected urine.

Analysis of the blood affords the most reliable means of knowing the extent of the uræmic poisoning.

These writers end by saying that while sublimate is excellent for the hands and for articles used about the patient, it should not be used upon the patient's body when any solution of continuity exists.

In surgery its employment should be restricted to superficial wounds of small extent, upon whose surface irrigation is rapidly performed.

All efforts to diminish the toxic effects of sublimate by dilution of the solutions employed or the use of other salts of mercury should be abandoned for the use of innocuous antiseptics.

While we cannot agree with the last statement made by Doléris and Butte, their cautions have weight, and their experiments are of interest. A case which illustrates in the human subject the ill effects which their method of injections produced upon wounds is reported by Dr. W. T. Belfield, of Chicago, in the N. Y. *Medical Record* of August 21, 1886. A patient was operated upon for calculus and enlarged prostate by suprapubic cystotomy. The wound was irrigated once daily with 1 to 1000 sublimate solution, the bladder with boracic acid solution. On the eleventh day after operation the patient had diarrhœa, with falling temperature, metallic taste in the mouth and prostration; death ensued on the thirty-sixth day, with marked symptoms of intoxication; post-mortem examination of the bladder only was allowed, which was free from suppuration.

One of the more remote effects of mercurial intoxication is found in lesions of the peripheral nerves, described by Letulle, at the Paris Académie des Sciences.[1]

Gustave Braun has reported[2] 9 deaths in 475 cases, from the use of vaginal injection of 1½ litres (about 1½ quarts) of 1 to 1000 solution. He also observed intoxication following the use of 1 to 3000; mercury was found in the feces, and death occurred in sixteen days. He found mercury in the feces of patients receiving injections of 1 to 4000; he cautions against its use in cases where solutions of continuity exist, and the patient is anæmic.

[1] L'Union Médicale, January 15, 1887.
[2] Wiener med. Wochenschrift, No. 21.

Fürst (loc. cit.) mentions four fatal cases of sublimate poisoning, and sixteen in which recovery ensued. A portion of these cases are doubtless included in the reports of fatal cases to which allusion has been made. He derives the following observations from these cases:

Unnecessarily great quantities of stronger solutions should be carefully avoided.

Repeated injections and continuous irrigation are exceedingly dangerous. Residual fluid should be carefully expelled; care should be taken to prevent uterine atony and dilatation. Anæmia greatly predisposes to poisoning.

Albuminuria is a positive contraindication; this is true in the use of carbolic acid also. The renal condition which normal pregnancy occasions causes a peculiar susceptibility to poisoning from mercury; the comparative immunity of surgical patients is mentioned as pertinent. Primiparæ are more exposed to intoxication from their greater liability to eclampsia and its attendant renal conditions. Patients suffering from pyrexia are more susceptible.

The danger of the injected fluid passing through the Fallopian tubes should be borne in mind. An interesting case reported by Vohts (*Hospitals Tidende*, 1884, No. 22), illustrates this danger.

While the cases cited can lay no claim to numerically including the reported accidents in the use of sublimate, its dangers are apparent. The question arises, How can so useful and powerful an agent be used safely? The full answer of this question will indicate a rational antisepsis in obstetrics.

The statistics of Ehrendorfer prove that non-interference with normal conditions results well, and that innocuous antisepsis, with cleanliness, produces excellent results.

The success obtained by Garrigues in the prophylactic treatment by sublimate and occlusion (*Antiseptic Midwifery*), and the excellent progress made under the same treatment at the Boston Lying-in Hospital (Richardson, *Boston Med. and Surgical Journal*, for January 27, 1887), with the results of similar treatment in various degrees of exactness in other maternities, leave no doubt of the value of such a routine. First in importance is non-interference, rationally conducted and supplemented by the rigid disinfection of all persons and things which come in contact with the patient; this is best accomplished by the preliminary use of potassium soap (Kümmel, of Hamburg, *Archiv für klin. Chirurg.*, 1886, xxxiii. 3, p. 531), in cleansing hands and instruments, and the patient's external parts; then the faithful use of sublimate solutions, 1 to 1000, or 1 to 2000, for the unbroken skin, and when the mucous membranes are *undoubtedly intact*, the use of the weaker solutions, *per vaginam*, may safely be allowed before labor; these injections would be indicated only in a healthy patient after all means had been used to ascertain the condition of the bowels and kidneys. For the disinfection of instruments and metallic articles potassium soap and five per cent. solution of carbolic acid are sufficient (Kümmel, loc. cit.). The disinfection of apartments, as suggested by König, by vapor of sublimate solution has been

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tried at Göttingen, by Kreibohm, and at Berlin by Heræus (*Centralblatt für medicin. Wissensch.* for January 15, 1887), but without success; cultures used in these experiments were not sterilized. The occlusion bandage of Garrigues (loc. cit.) is largely efficient against the germs of the atmosphere. This bandage includes the compression bandage in the treatment of the breasts, and coupled with the careful disinfection of the nipples, prevents the increased susceptibility which the pyrexia, known so long as "milk fever," has always produced. The practical application of these principles to private practice has been illustrated in the article of Fry, in the *American Journal of Obstetrics*, for April 1886, and by Garrigues.

In pathological cases the vaginal and intrauterine douche will be considered appropriate.

We have seen that the repeated use of sublimate upon wounded surfaces is dangerous, and that it forms irritating compounds with the albumen of necrosing tissues. The combination of sublimate with ammonium chloride, as done by Lister, is indicated, and in this connection the experiments of Lépine, as quoted in the *Fortschritte der Medecin.* of January 1, 1887, are of interest.

His results, while not proven, indicate the possibility of so mixing the most efficient soluble antiseptics known that combination of the ingredients of the mixture shall result, and a great diminution of irritant effects with increased disinfecting efficiency. If, however, one or two intrauterine applications of sublimate prove without ill effect, the danger of repeated use should not be ignored. Solutions of sublimate for douches should not be stronger, when used where lesions of continuity may exist, than 1 to 4000. Failure to disinfect the uterine cavity by such solutions, as shown by continued pyrexia, should urge seriously upon the physician the propriety of using the dull curette, and the after-douche of thymol, carbolic or boracic acid, as practised by Carl Braun and others.

The clinical studies of Johnson, in Stockholm (*Medicinisch-Chirurgische Rundschau* of December 15, 1886), show boric acid and its compounds to be innocuous when moderately used, and to be particularly adapted to patients suffering from albuminuria, as the quantity of albumen was lessened and diuresis induced. In a series of articles upon the different antiseptics by Bergonzini and Frignani the writers state that boric acid differs from corrosive sublimate and carbolic acid in that it does not form obnoxious compounds with the tissues; and it is commended as an efficient and innocuous agent.[1]

The objections raised by Mikulicz to iodoform as an antiseptic, have found reinforcement in the work of Heyn and Roosing[2] in Copenhagen, who have concluded that iodoform is not only not an antiseptic of value, but that it may itself contain poisonous germs. It is thought by some that the insufflation upon vaginal wounds of iodoform closes their surfaces against absorption, and it has been commonly used for this purpose. The employment of such a local occlusion dressing for vaginal ulcers deserves study and experiment.

The proposal to banish corrosive sublimate from obstetrical practice, and its excessive use are equally irrational; the line of progress lies in a careful study of the manner of employing so valuable an antiseptic. If these notes prove of service in such study, they will fulfil their object.

[1] La Rassegna, December, 1886, p. 545.
[2] Fortschritte der Medicin, January 15, 1887.

LIGATION OF THE EXTERNAL CAROTID ARTERY.[1]

A SYNOPSIS OF FIVE SUCCESSFUL CASES.

BY JOHN A. WYETH, M.D.,
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PRIOR to 1878 there were recorded only 67 cases in which the external carotid artery alone was tied; 3 of these died, and these fatal cases were from gunshot wounds in military practice. 1 died on the table from the effect of hemorrhage before the ligature could be applied. In the other 2 the cause of death is not given. Of the 67 cases, hemorrhage after deligation occurred in 5, none of which proved fatal. In 4 of these cases the bleeding was noted as at the seat of lesion beyond the ligature, and in 1 the point where the hemorrhage occurred is not stated. The artery was tied on both sides in 6 patients, and all recovered.

Since the demonstration by myself in 1878 of the comparative regularity of origin of the branches of this vessel, together with the great mortality following deligation of the common carotid, as shown by an analysis of 794 cases, the application of the ligature to the common trunk for a lesion in the distribution of the external carotid beyond the origin of the lingual branch has been abandoned, and deligation of the external trunk has become the accepted operation. The introduction of the catgut ligature has added an element of safety to this procedure which has, in my opinion, almost entirely removed the danger of secondary hemorrhage.

Without further discussion of its merits, I wish to add to the record the following cases:

CASE I.—Moses Millspaugh, carpenter, fifty-six years old, married, United States, came under my care through the courtesy of Dr. Bayley, of this State, on January 6, 1885. The patient's history contained nothing of interest with the exception that he had been a constant chewer of tobacco until one year ago, when he stopped on account of a painful sore which appeared on the left buccal wall, at the point where he was in the habit of holding the tobacco while it was being saturated with saliva. The ulcer and induration gradually spread, and when I first saw him there was an evident epithelioma involving the buccal wall and a limited portion of the alveolus of the lower jaw. The lymphatic glands of the left upper carotid and submaxillary triangles were enlarged and indurated.

On January 9, under ether narcosis, I dissected out the glands, and finally, in order to prevent

[1] Read before the New York Surgical Society, February 23, 1887.

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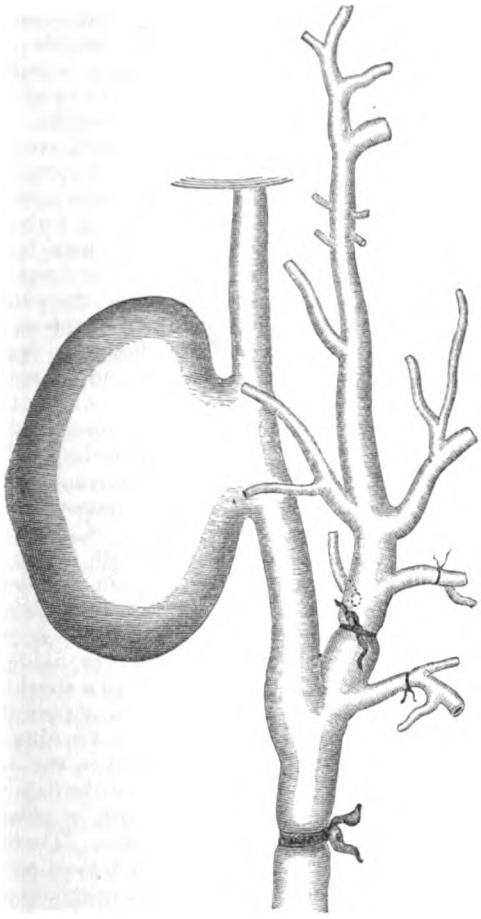
bleeding, but chiefly to retard the recurrence and further development of the neoplasm, placed a catgut ligature around the left external carotid artery below the lingual and about one-third of an inch above the bifurcation. As is my rule of practice, I also tied the superior thyroid artery about a quarter of an inch beyond its origin. Antiseptic dressing,



bone drain, and silk sutures. I then excised the epithelioma, cutting well away from the margins of the disease. The patient recovered without hemorrhage or any unfavorable symptoms, and, on January 31st, twenty-one days after the operation, he left the city for his home.

CASE II.—P. H. W., thirty-seven years, journalist, married, United States, came to me through the kindness of the late Professor Frank H. Hamilton, on June 26, 1886. The patient had for years been a confirmed smoker of cigars and cigarettes, and fifteen months before I saw him a painful ulcer appeared on the under surface of the left side of the tongue near the tip, just where the end of the cigar rested while holding it between his teeth and lips.

When examined, the anterior portion of the tongue was indurated and swollen in part, and in part occupied by the characteristic ulcer of epithelioma. The posterior limit of the induration crossed the tongue obliquely, being about one inch from the tip on the right side, and two inches along the left border. The glands of the left side of the neck were infiltrated. On June 29th, under ether, I dissected out the glands of the neck (left side), and tied the external carotid a quarter of an inch above the bifurcation of the primitive trunk. The superior thyroid was also tied. Catgut ligatures were employed. Bone drains and catgut sutures. I then extirpated the tongue and floor of the mouth. The organ was divided one inch behind the line of induration. The patient recovered without a bad symptom, and is now, eight months after the operation, free from all evidence of epithelioma, and in active business.

CASES III. AND IV.—Zoe Magi, forty-seven years, housewife, Italy, came under my observation on June 14, 1886, having been sent to my clinic at the Polyclinic by the kindness of Dr. Abruzzo, of this city. Sixteen months before this date, following the cessation of her menstrual flow, she noticed that the parotid gland of each side was enlarged. The swelling of these organs continued, the mouth became dry from lack of saliva, and deglutition was difficult. Up to the time of the appearance of the tumors of the parotid the health of the patient had been good.

On admission to Mt. Sinai Hospital the tumors were about of equal size, extending from the upper level of the ear to the level of the chin. A diagnosis of bilateral sarcoma was made. The patient was told that an operation would very probably not effect a cure, and that facial paralysis would result. She insisted upon an attempt to give her even temporary relief. On June 14th I tied the right external carotid between the lingual and the bifurcation of the primitive trunk, preliminary to the removal of the neoplasm. The superior thyroid was then tied. The hemorrhage during the dissection was insignificant.

The wound healed quickly, and on September 21st the second operation was performed. On account of the extension of the tumor down the neck, I had great difficulty in getting at the external carotid, which was entirely overlapped by the new growth, and was pressed deeply in the neck. The bleeding was so troublesome that I threw a temporary loop of catgut around the common trunk one inch below the bifurcation, which controlled the hemorrhage until I passed the ligature around the external trunk just at its origin. After removing the neoplasm, I found the ligature had been applied on a level with the crotch of bifurcation. This was nearer the primitive trunk than I had intended, but when it was applied I could not see the exact location of the ligature on account of the tumor. It was left in this position, and the superior thyroid was also secured. No bleeding occurred, and the patient recovered and left the hospital on November 9th. This is probably the only case on record in which the ligature was applied so low down, and well demonstrates the safety and efficiency of the catgut. The microscopical examination of the neoplasma proved these to be round-cell sarcoma.

CASE V.—In this case the common and external carotid arteries and the superior thyroid branch were tied for aneurism of the internal carotid. The internal trunk was affected with atheroma to such an

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extent that the ligature could not be applied to this vessel. The operation was performed on July 24, 1883. The tumor rapidly diminished in size, the patient leaving the hospital on the twenty-third day after the operation. She is now living and well.

THE EARLY RECOGNITION OF INCIPIENT MELANCHOLIA.

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THE general practitioner has no hesitancy in saying that a case of impaired physical health, with loss of sleep and confirmed mental depression, in conjunction with ideas of suspicion, hallucinations, illusions and delusions with suicidal or homicidal tendencies, is one of melancholia, and generally advises the friends to place the patient in a well-conducted asylum for the insane.

With symptoms less pronounced there is often considerable doubt as to the state of the patient's mental condition, and the advisability of hospital care. The making of a positive diagnosis is delayed, and not infrequently much valuable time is lost in the proper treatment by failing to consider the importance of the early symptoms of the disease. In some cases to say where sanity ends and insanity begins is indeed at first sight a difficult task; but a careful examination of the clinical history will generally be rewarded by a correct conclusion. It is extremely difficult to draw a theoretical line between mental health and disease, but practically there are no greater obstacles than exist in distinguishing between bodily health and disease. The great characteristic of all insane conditions is the excess or deficiency of normal mental activity in conjunction with impairment of will-power. The disturbance may be general, leading to mental confusion and incoherency of thought; or it may be so limited that the deranged ideas will be circumscribed by particular lines.

In the examination of a case of suspected lunacy, the motives which govern the conduct and the reason therefor should be ascertained, if possible, that judgment may be made as to how far unsound influence has prevailed. In cases in which the insanity is not readily apparent, it is of the utmost importance to have a clear conception of the natural or normal mental capacity of the individual, and also to consider how far the mind has been formed by social position, educational training, and religious teaching. The departure from the individual standard and from that usual to the majority of mankind in similar circumstances will very accurately gauge the amount of mental disturbance. No single word so perfectly describes this condition as "alien."

There is a class of persons whose physical and mental powers are so harmonious in development and operation that there is no undue depression or exhilaration produced by the incidents of daily life. Whether they meet with adversity or prosperity the serenity of mind continues. As a rule, when these minds become deranged they break down suddenly. The progressive steps or stages which characterize the majority of cases of melancholia follow each other with surprising rapidity. The period of confirmed depression, with impaired bodily health, to which I desire to call attention is absent, or of such short duration that it is unobserved. The onset is short, the features of the disease prominent, and the insanity unmistakable.

The mild forms of melancholia seldom begin suddenly. The mental symptoms are almost always preceded by impairment of physical health. The appetite is poor or capricious. If there is a relish for food, digestion is imperfectly performed, and there is consequently loss of bodily weight. The functions of the liver are disturbed, and constipation is one of the most constant of all symptoms. Vertigo is frequently present. Some cases complain of headache, while others may have a feeling of "weight" or "pressure," or there may be "a lightness of the head." The pupils are frequently dilated, the hands cold and damp, and the purplish tinge which extends about one-third of the way up the forearm in many severe cases begins to appear. An anæmic condition of the blood and consequent limitation of the proper nourishment of the brain impairs the normal supply of nerve force and the integrity of the mental faculties. A feeling of lassitude takes the place of the natural buoyancy of the individual, and the patient becomes conscious that there is something wrong with him. Corresponding to the failure of physical strength, there is a flagging of the mental powers, and an aversion to intellectual pursuits. The patient is apt to become absent-minded, and loses interest in what is going on around him. There is difficulty in fixing the attention on any subject for more than a short time. Sleep is broken by depressing dreams or periods of wakefulness. When a good night's rest is obtained, the patient is not sufficiently refreshed in the morning to bear the accustomed burdens of the day without languor. Exertion is no longer a pleasure, and indifference to activity is manifest. There is a change in the facial expression, an unnatural manner of doing the common things of life, peculiarities or neglect in adjusting the dress, and the general appearance of the patient becomes indicative of the mental commotion going on. No calamity is so great, no misfortune so irretrievable, no affliction so heavy as the distress of a diseased imagination. Transient misgivings, moody apprehensions, a consideration of undefined terrors, frequent self-examination of imaginary short-comings, increased emotional susceptibility, slowly but surely change the countenance, and, if left unchecked, the ravage may go on until the change is apparent to the most casual observer.

Change of character and disposition is a pretty constant concomitant of the incubation of mild cases, and a marked premonitory symptom of the more aggravated forms. From being mild, pleasant, and cheerful, there is a gradual change to peevishness, irritability, and fault-finding. Hours of unhappiness result from trifling circumstances. Trivial incidents are magnified to mean a slight, or to have some special reference where nothing of the kind is intended. In certain frames of mind an unconscious

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smile, or thoughtless gesture, may be interpreted as a derision or a special pointing out. Ordinary conversation may seem to have a hidden meaning, and a personal application is frequently made of a general public discourse. Morbid selfishness becomes a prominent trait. Suspicion, apprehension, and evil forebodings, with constant tendency of mind to turn inward and dwell upon self, leave no opportunity to cultivate friendship, to relieve distress, or for the higher and more noble purposes of life. Constantly viewing imaginary wickedness prevents pointing to the way of holiness. No consolation can be offered when the mind is overwhelmed with alleged misery. Eyes that generally have no tears for their own suffering are unable to weep for others. No generous impulses fill the heart when worldly possessions seem about to vanish. There is no food for the poor when starvation or the almshouse appears in the near future. Instead of attempting to supply the requirements of those naturally depending upon them, there is an inability to follow the usual vocation of life, or there may be a closer application to business than the circumstances require.

A complete revolution in the religious and moral ideas without adequate cause is open to suspicion of mental aberration. When one who has always lived an upright, consistent life begins to make self-accusations of evil-doing, and unusual personal application of those passages of Holy Scripture which bear upon the future punishment of the wicked, he is fast travelling the broad road which rapidly leads to the supposition that the unpardonable sin has been committed, the day of salvation passed, and only future punishment awaits him. The temporary anguish excited by a sense of guilt under the workings of the Holy Spirit in the wicked and depraved is soothed by hope of forgiveness, but the continued remorse of a diseased condition grows deeper and keener, till self control is lost in a paroxysm of frenzy, or recovery takes place. The operation of the Holy Ghost upon the mind soon leads it out of darkness into marvellous light and useful activity, but the despondent ideas of mental derangement unfit the individual for the duties of life in proportion to the amount of disease. Perhaps the life of John Bunyan furnishes as good an example as can be given. The distressing ideas which harassed his mind under conviction passed away as hope entered, and his unequalled *Allegories* are a permanent monument to his intellectual clearness. Unstable religious ideas, leaving the accustomed denomination and place of public worship for another, only to change again in a short time, have been the early evidence of approaching melancholia in certain cases. The religious thoughts and actions of a disordered imagination are as unlike the fruits of true religion as the latter are unlike fanatical and hysterical excitement. Morbid religious feelings are unusual and irrational, and are accompanied by unsound notions and actions in regard to other subjects. A melancholic whose ideas tend to religious subjects can give no true or just reason for his depression, but "a broken and contrite heart can prove its sin." The remorse of the insane produces no healthy, abiding reform in the life and character of an individual, but in the sane it does.

A painful change of feeling, without undisputable reason, toward former objects of respect and affection should excite the gravest fear of mental unsoundness. It is one of the strongest indications of the insane state when ungrounded suspicion begins to poison the mind against those who have been formerly loved and trusted, and who can have no possible motives except the welfare of the individual. When the actions of dutiful children, doting parents, or the long-tried companion of life, appear to be working against one for evil, reason may well be said to tremble on its throne. As distressing as are these thoughts, they are fraught with no less disastrous consequences than the other extreme when love seems to be intensified in the face of alleged adverse circumstances which may lead to the destruction of more than one life, to avert some unreal calamity. Although what is known in Maine as the Edgecomb tragedy occurred almost forty years ago, it illustrates the truth of this remark as perfectly as if it had occurred to-day.

A man in comfortable circumstances, by the name of Pinkham, thought his farm and money could give him no more happiness, and regarded the pleasures of this world as a bubble; that he had nothing more to live for, and became tired of seeing the sinfulness of his fellow-creatures in this wicked world. He said, like the Psalmist, he knew his enemies would swallow him up, for they were many, and fought against him. He had also hallucinations of sight. He calmly wrote a detailed account of his feelings and ideas, and what he proposed to do, and placed it in the family Bible, and then, with an axe, deliberately murdered his wife and four children, in order to see them safely free from the bonds of this wicked world. He immediately after took his own life with a razor.

Not infrequently there is a most decided change in the sexual desires in connection with despondency. There may be either great exaggeration or partial or total abolition; sometimes there is a perversion of sexual instinct. Lascivious conversation and obscene conduct in the habitually modest and chaste are almost invariably conjoined with disease of the brain. The sudden prominence of the sexual propensities over the will and caution often lead to the most revolting and unreasonable actions and crime.

The organs of special sense may participate and play a very important part in the lowness of spirits before positive delusions or hallucinations become established. There are cases on record where the loss of sight or hearing have seemed to be the exciting cause of the mental ailment. The hearing may become remarkably acute, and ordinary sounds produce unpleasant impressions. Conversation in an undertone or at a distance may be distinctly heard, which could not be understood in the normal condition. The striking of a clock has been mistaken for the tolling of a funeral bell. In pronounced melancholia hallucinations of hearing are a very common symptom. It is not uncommon to hear the deranged remark, "Things don't look

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as they used to; everything has changed." I recall the case of a farmer who said the grass had turned blue, his potatoes were all small, and the sun appeared as seen through smoked glass during an eclipse. There may be complaint of unpleasant odors and poisonous gases where none exist, or delight may be experienced by an unpleasant smell. The taste may be obliterated or perverted. The power to detect the flavor of food is so impaired in some cases that there is a frequent complaint of improper cooking, or a suspicion that deleterious substances have been introduced. Patients frequently imagine they taste poison in their food. In perversion of the taste, the most loathsome as well as indigestible substances are devoured with avidity. In some cases the mind is so fully occupied with depressing ideas that common sensibility is apparently lost. The hair or whiskers may be pulled out, or the fingers pricked or bitten till they bleed, without pain being felt. In some, strange and unnatural sensations are experienced, as when electric shocks or creeping sensations are alleged to be felt. Sometimes abnormal sensations are referable to the alimentary tract, as when the throat is supposed to be closed, or the walls of the stomach grown together or filled with indigestible food. In many cases the bowels are thought to be incapable of action.

A striking peculiarity of some cases is the loss of interest in self and family as well as in the affairs of the world. An apathetic state is reached when no concern is manifested for the welfare of self or family, although there may be no thoughts of self-destruction, yet life has no attractions. Healthy human affection is lost, and everything is regarded with listless indifference. Exceptionally, some sudden shock may arouse them to a sense of duty, and while administering to the necessity of some one near and dear to them, their own restoration may take place; but this is not common.

Reticence, or almost complete silence, is a marked feature as melancholia becomes more confirmed. If the patient enters into conversation he talks upon subjects connected with his depressed ideas, and is unable to turn from one subject to another, as in health. In most cases there is a tendency to avoid the society of former companions and friends, and to become seclusive in habits in conjunction with this state. If a neighbor makes a friendly call the patient may quietly withdraw without making any excuse for his conduct. The desire to be alone may become so great that considerable difficulty will be experienced in preventing them from leaving the family circle, to seek entire solitude. The poet has very accurately described in the following lines the condition of the severe types of the disorder:

> "He makes his heart a prey to black despair,
> He eats not, drinks not, sleeps not, has no use
> Of anything but thought—or if he talks,
> 'Tis of himself."

The conditions most likely to be confounded with mental depression without delusions or hallucinations are hypochondria, hysteria, and eccentricity. In hypochondria there is a concentration of ideas upon the bodily health and abnormal sensations connected therewith. Trifling, but usually actual ailments are magnified and exaggerated, but when the mind is deranged, absurd and impossible maladies are imagined to exist. In the one there is some reason for the ideas, in the other usually there is not. With hypochondria, there is a persistent desire and constant effort made for relief. Doctors and charlatans are consulted. Friends are interviewed, and medical writings are read with avidity, and there is a constant trial of medicinal remedies. In the confirmed depression of genuine mental disease, there is no hope of relief and no effort made except to plan self-destruction. Suicide appears to be the only way out of misery. Hypochondria is afraid of death. Melancholia welcomes it as an escape from trouble. When the hypochondriac becomes so engrossed in ideas relative to his physical condition, that he is unable to entertain and discuss others, and is so far influenced by them that his mode of living is correspondingly changed, either in regard to food, habitation, or employment, or all of these, he has passed the "border land" which divides sanity from insanity, and stands with the unfortunate class that are deprived of their reason.

Hysteria is almost exclusively a disease peculiar to women. The globus hystericus, paroxysmal character, the prevarication and contradictory statements under examination, instability and emotional nature of the depression and the tendency to rapid recovery if left entirely alone, all point to the true nature of the malady.

Genuine eccentricity is not suddenly developed. It may be conveniently considered existing in two types. The first is found with strong individuality, indomitable will, great courage and perseverance, strong convictions, stable ideas, and capability to mark out a path in life and walk consistently therein. While there is a difference from the majority of mankind, the thoughts and actions are in harmony with what they consider the true purposes of life, and the object to be achieved. Their emotions and passions may be strong, but under firm control. The intelligence is clear, and life generally a success. "The singularity of conduct is a natural quality, and not a product of disease." The second type is fond of approbation, desirous of attracting attention, vacillating in ideas and purposes, without much intellectual force or power of application, and with ideas and manners inconsistent with the surroundings and station in life. If these symptoms are late in developing, there is good ground to suspect they are the early symptoms of latent mental disorder. Without doubt there is congenital defect in the most of this class. There is only a short step between them and the vain and frivolous simpleton, whose demented condition makes the laughing stock of society.

The most difficult cases to diagnosticate are those where the natural traits and qualities of character have gradually and almost imperceptibly overstepped the limits of health, and passed into an exaggerated state. It is a condition of magnified morbid intensity of disposition. The change is not so much in "the way of thinking, feeling, and acting," as in the abnormal degree. It differs from

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the intensity seen in an outburst of passion, or display of temper by its confirmed and prolonged duration. It differs from health when the power of the will is no longer strong enough to control unreasonable impulses, and also when the judgment becomes so impaired that erroneous views are entertained which previously would have been pronounced false. Occurring in a naturally gloomy disposition, it should be regarded as unsound when the will is so far dethroned that the mind continually dwells on the irrevocable past, or anticipates only future misery. Sorrow and fear enter into every life in varying proportions, but there is also commingled a counteracting amount of joy and hope in every healthy mind.

Confirmed dejection of spirits tends to the formation of delusions, but an insane state is often reached before they are developed. Delusions, hallucinations, and illusions are the concomitants of the disease. The feeling of melancholy may so pervade the mind that the ideas and actions participate in it. The alteration in temper, habits, feelings, affections, propensities, and conduct presents a faithful portraiture of the mental change. The will becomes impaired and the other faculties no longer exert their accustomed force. A knowledge of what is right and proper still exists, but the power to execute is deficient. The judgment becomes biassed, and instead of arriving at a conclusion by the process of reasoning, an opinion is formed from an inward conviction begotten of a depressed condition. That portion of the nervous system which presides over the emotions and intellectual faculties seems to be in a state of hyperæsthesia, while that which subserves the functions of nutrition is in a state of partial anæsthesia. The impressions on the healthy brain, which ordinarily exert emotions of pleasure and promote happiness, may create just the opposite in disease. The amount of mental pain is in proportion to the amount of abnormal sensibility. The obtunding of the nervous centres which subserve nutrition, is manifest by the confirmed loss of appetite, flabbiness of the tissues, and the small amount of strength obtained from the ingestion of even enormous quantities of nutritious diet. The harmonious distribution of nervous force is broken. The over-stimulation of the emotional and intellectual centres is at the expense of those which preside over nutrition. To assist nature in the restoration of the healthy balance is to reëstablish the power of the will, correct erroneous ideas, and restore the natural feelings.

The symptoms of confirmed mental depression depending upon a "diseased condition of the brain, its vessels or investments," are of no ordinary import. They may be the precursors of an attack of profound melancholia or of acute maniacal excitement. It is the opinion of some that all forms of mental aberration are preceded by a longer or shorter period of depression. Whether this is conceded or not, there is no doubt that confirmed dejection of spirits in conjunction with impaired physical health, tends to the formation of delusions which are liable to be accompanied by hallucinations and illusions. The importance of early treatment cannot be over-estimated. In the annual report of the Superintendent of the New York State Lunatic Asylum for 1884, speaking of the discharges for the previous ten years, he says: "During that period there were discharged, recovered, 1440 patients; and of that number, 1231, or 85.48 per cent., had been insane less than one year, while only 209, or 14.52 per cent., had been insane more than one year. It is thus seen that the number of recoveries is six times as great in those who have been placed under treatment before the disease has existed one year, as it is in those who are not placed under treatment until after that length of time."

These figures argue with great force for the early treatment of mental derangement. I know of no one experienced in the care and treatment of the insane, who does not concur in the paramount necessity of early treatment. If the mental faculties are not to remain permanently impaired, the diseased condition must be removed before the integrity of the nervous system undergoes unalterable changes. Not only are the chances of recovery greatly increased by early treatment, but the duration of the disease is also very much lessened. The imperative need of speedy restoration of the afflicted individual to himself, to the society of friends, and to future usefulness in the world, should not be jeopardized by delay.

The successful treatment of the insane consists of much more than prescribing medicine. The deranged can seldom be treated advantageously in their own homes in the early stage of the disease. By removal benefit is not only secured by change of scene probably already unpleasantly associated with morbid ideas, but many sources of irritation and annoyance are also frequently avoided. It is a well-known fact that the insane receive the suggestions of strangers, and comply with their requests more readily than they do the wishes of intimate friends or relatives. The majority of persons deprived of their reason are in indigent circumstances, and are unable to bear the necessary expense of medical attendance and a prolonged stay in a private house reasonably adapted to the needs of their case. To all such the early removal to a well-conducted hospital for the insane should be made. After mental depression becomes established the judgment seldom retains control of the feelings and actions, and the liability to injure self or others is very great. The probability of a sudden change converting a comparatively mild case into a serious one should always be borne in mind. The majority of suicides chronicled in our daily papers come from this class. Hospital care affords such cases the greatest protection and the most liberty. The restraining influence of asylum discipline on the peculiar restlessness and the morbid impulses is less oppressive to the patient than any other. The regularity of institution life, in conjunction with the hygiene of the surroundings, properly prepared food, and judiciously selected diversions, is of no secondary importance. If the proprieties of life are violated by indecent habits, or obscene conduct, the patient is protected by an impenetrable veil between them and a curious and gossiping world.

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If the judgment and skill which come from experience and observation of many cases are worth anything it must be accorded to those who have the care and treatment of those in our asylums and hospitals for the insane.

No arguments in favor of boarding or farming out the chronically insane have any bearing on acute cases. In one the storm has passed, in the other it is approaching. If the general practitioner does not desire to assume the responsibility of the case, or is limited in his authority to enforce his recommendations relative to treatment, the interest of the patient will be served best by early removal to an asylum.

A METHOD OF PREPARING POTATOES FOR BACTERIAL CULTURES.

BY MEADE BOLTON,
OF BALTIMORE.

THE cultivation of bacteria on steamed potatoes in the manner described by Hueppe and others, is objectionable on account of the fact that the cultures cannot be examined closely without lifting the cover of the dish, thus running the risk of infection from bacteria falling in from the air. Furthermore, in examining one culture all other cultures which may be in the dish are exposed. To examine the cultures through the thick glass covers I have always found more or less unsatisfactory. It is, too, extremely difficult to preserve such cultures free from contamination for any great length of time. The preparation of the potatoes, leaving them a half hour to one hour in corrosive sublimate solution, etc., as pointed out recently by Esmarch, is also a tedious procedure. These objections are largely met by using the method introduced by Esmarch, which he has recently described in the *Centralblatt für Bacteriologie und Parasitenkunde*, Band i., No. 1. I have used this method quite extensively, but failed to find in America just such cells as he used.

I recently hit upon the following method, which I am sure will recommend itself, and possesses, I think, advantages even over that of Esmarch, or the method employed by some, of filling test-tubes with potato pap.

The method I recommend is to take wide test-tubes, an inch or more in diameter, and melt them off so as to make a tube about four and a half or five inches long. This length is more convenient, though I have made mine generally from tubes about eight inches long, melting them off in the middle at the blowpipe, thus making two tubes. Pieces of potato about two or three inches long are cut so as to fit nicely in the tubes. It is well to have one end of the potato cylinders cut very obliquely, so as to furnish the greatest possible surface, as in the case of oblique agar or gelatine tubes. I use an ordinary apple-corer to cut the potato, and first cut off the skin at the point of insertion and the point of exit. The tubes may be first sterilized in the air-bath as for gelatine and agar, though this is not necessary, as the tubes with the potatoes in them may be thoroughly sterilized in steam.

Such cultures may be kept indefinitely, and each culture may be examined, etc., without disturbing any other culture, which was unavoidable with the large dishes formerly employed, with several cultures in each dish. A manifest advantage is that the cultures may be studied with the naked eye, and exhibited without opening the tube, just as with agar and gelatine. A few drops of water in the bottom of the tube insure the potato against drying out.

PATHOLOGICAL DEPARTMENT,
JOHNS HOPKINS UNIVERSITY, February 9, 1887.

HOSPITAL NOTES.

TREATMENT OF PNEUMONIA AT THE MASSACHUSETTS GENERAL HOSPITAL.

In acute pneumonia, occurring in previously healthy individuals, the treatment employed by DR. MINOT consists in relieving pain and procuring sleep by appropriate remedies when required, with milk or such other liquid nourishment as the patient is willing to take. When the skin is hot and dry, the solution of acetate of ammonia or Dover's powder is ordered. No external applications are made unless the pain should be severe, when weak sinapisms or fomentations are sometimes used. Stimulants are rarely required. In most of these cases little or no medicine is given, the disease being allowed to run its usual course of six to ten days without special interference. The prognosis is almost always favorable.

To patients debilitated by old age, over-work, previous illness, etc., but who are temperate and free from cachexia, alcoholic stimulants and carbonate of ammonia are given as required, with the addition of digitalis should there be signs of pulmonary obstruction from failure of the heart's action; together with nourishing diet. Under this treatment the majority recover, but the prognosis is much more doubtful than in the preceding class.

A third class of patients comprises the cachectic, including the intemperate, the victims of chronic renal disease or of tubercle, etc.; and also those already prostrated by grave acute disease, such as typhoid fever, general bronchitis, etc., although otherwise previously healthy. In these cases stimulants are freely given; large doses of brandy are easily borne, and sometimes appear to save life. Nourishment in liquid form is also required, but it seems less important than alcohol. External applications requiring frequent changing are avoided, the patient having no strength to spare. A large proportion of these patients die, whatever treatment be adopted.

DR. F. C. SHATTUCK believes acute pneumonia to be a general specific disease, of which the pulmonary consolidation is the local manifestation; also, that it is self-limited. The treatment, consequently, is at present purely symptomatic. With the abortion of the disease by large doses of quinine, as has been observed by Flint and others, he has no personal experience. Now and then a case undoubtedly occurs in which, especially early in the course of the disease, venesection is clearly called for, but it has not as yet been his fortune to meet such a case. Pneumonia patients are, as a rule, debilitated to a greater or less degree. Oftentimes the treatment

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is comprised in mild counter-irritation to the chest, and an opiate to allay cough, ease pain, and promote sleep. In many cases alcoholic stimulants are demanded, and are given in such quantities as are indicated by the pulse and the first sound of the heart. Digitalis and carbonate of ammonia are also used, though less frequently than alcohol. Sponging of the body with alcohol and water is also prescribed with a frequency which depends upon the temperature and the general condition of the patient.

At the same time, the greatest stress is laid upon careful nursing and judicious alimentation; the bowels are kept open.

MATERNITY HOSPITAL OF PHILADELPHIA.

Service of BARTON C. HIRST, M.D.

EFFECT OF RETAINED MEMBRANES ON THE PUERPERAL STATE.

As a commentary on Dr. Fischer's communication in a recent number of the *Vrach*, quoted in THE MEDICAL NEWS of January 22d, the following case possesses considerable interest.

A. S., primipara, æt. twenty, was confined July 15, 1886. The labor lasted six hours and was easy. The puerperium was apparently normal in every respect and on July 27th the patient left her bed. Two days afterward the cervix, examined by means of a bivalve speculum, was found slightly torn, but the raw surfaces looked healthy. On the following day, July 30th, the temperature was found in the morning to be 102° and in the evening 102.6°. A large dose of quinine was given.

July 31. Temperature, A. M., 100.6°; P. M., 102°.
August 1. A. M., 101°; P. M., 101°.
2d. A. M., 99°; P. M., 103°.
3d. A. M., 103°.

As the uterus was large and the os patulous, and as a foul-smelling discharge had made its appearance, it was suspected that the high temperature was due to the decomposition of retained membranes, originated by the admission of air to the uterine cavity by the use of the speculum. The uterus was, accordingly, scraped out with a curette, with the result of removing a large quantity of decomposing chorion and decidua. This was followed by an intrauterine injection through a Bozeman's double catheter, of a 1 : 2000 corrosive sublimate solution. On the following day, August 4th, the morning temperature was 99°, the evening temperature 99.4°. August 5th the temperature was normal and so remained.

While, therefore, Dr. Fischer's conclusion that the retention of membranes is harmless, may, in general, be correct, this case just described proves that the admission of air into the vagina by any means, may be followed by the decomposition of the membranes, which can, and probably will produce, unless active treatment be employed, septicæmia or pyæmia.

MEDICAL PROGRESS.

INDICATIONS FOR THE USE OF NITROGLYCERINE.—DR. TRUSSEWITSCH, in an instructive paper on the use of nitroglycerine, published in the *St. Petersburg Medicinische Wochenschrift*, points out that the value of this drug in various affections—angina pectoris, migraine, and neuralgia (which he describes as angioneuroses), as also in sea-sickness, some forms of anæmia, faintness, palpitation, and other diseases—depends upon the existence of an irregular distribution of blood, which condition may be inferred from a certain degree of pallor of the skin, especially of the face, often coëxistent with a weak pulse and a small rigid radial artery, which frequently is situated at some depth. When, on the other hand, headache and neuralgia occur in patients with chronic congestion of the subcutaneous veins of the face, nitroglycerine is to be avoided; and similarly it is of no use in asthma, when the face is reddened in consequence of emphysema. If, however, a pale face exists with angina pectoris, migraine, giddiness, shock, toothache, or sea-sickness, the best results may be looked for by giving nitroglycerine. The regulating effect of the drug exercises an influence over the congestion of internal organs similar to that brought about by bloodletting; and in these congestions, whether of lung, brain, or kidney, when they are of a temporary character, the pulse is generally found to be slow and of low tension; a fact which, as the author remarks, is sufficiently well known in reference to the fever-free periods of acute hyperæmia of the lung and kidney. Dr. Trussewitsch lays down as a rule that the condition of the pulse is the best indication for the employment of nitroglycerine, and the most trustworthy guide as to the dose with which to commence the treatment. The smaller the radial artery is, the more rapidly it dilates under the action of the drug, and the less the secondary effects proceed; on the other hand, the fuller the pulse with a distended radial artery, the less it is affected; and finally, the softer the artery, with a weak pulse, the greater the secondary, and the less the general, effects. Single-drop doses of the one per cent. solution are sufficient in cases of small pulse, but with a full pulse it will be found that the full effects cannot be produced with less than two-drop doses. When there is a soft artery with a weak pulse, subnormal doses only should be given—a quarter to half a drop. After the trial dose is given, the patient's sensations of pulsation and pain in the head, as well as the distention of the radial artery under the finger of the physician, will be the guides for increasing the dose. The author finds that the best modes of administering nitroglycerine are the simple dropping of the solution on the tongue, and by means of tablets; much less satisfactory results were obtained when given mixed with water.—*The Lancet*, February 19, 1887.

THE GERMAN COMMISSION ON VACCINATION.—By vote of the German Parliament a commission was created in 1883 to consider and report upon the objections to vaccination and antivaccination. This commission was a large one, and included three prominent opponents of vaccination. The following are some of the conclusions given in its report as stated in the *Annales d'Hygiène Publique* for February, 1887:

The length of time for which vaccination protects against smallpox varies greatly in different persons, but in the mean it is about ten years. Revaccination is necessary ten years after primary operation. Two well-marked vesicles are necessary to insure a successful protective vaccination.

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There is no evidence as to any increase of special diseases or of general mortality which can be considered as due to the introduction of vaccination.

The use of animal vaccine is preferable. Vaccination should not be performed while scarlet fever, measles, diphtheria, whooping-cough, typhus, or erysipelas is epidemic, or unusually prevalent in the neighborhood. Infants should not be vaccinated before they are three months old, unless smallpox is prevalent in the vicinity.

The greatest care as to the cleanliness and disinfection of the instruments used for vaccinating is insisted on.

PEROXIDE OF HYDROGEN IN WHOOPING-COUGH.—DR. BENJAMIN WARD RICHARDSON, in *The Asclepiad*, No. 13, states that he has treated nine cases of whooping-cough with peroxide of hydrogen exclusively, in six males and three females, all children. The solution was given in doses of a fluid-drachm five or six times a day. The remedy in this affection has a decided value. Commencing with it in the acute stages of the disease, and trusting to it alone, he has never seen pertussis cut short so quickly and determinately by any mode of treatment except change of air. He had previously used dilute nitric acid in whooping-cough, as advised by the late Dr. Gibb, and with satisfactory results. The peroxide appears to him to act in a manner very similar, but, he thinks, with more effect. It subdues the spasmodic paroxysm, checks the secretion in the throat, and shortens the period of the malady, lessening, thereby, the dangers of after-effects. The mode of prescribing it is:

Hydrogen peroxide (10 vols. strength) .	ʒvj.
Glycerine pure	ʒiv.
Water distilled to	ʒiij.

Mix. To make a solution of three fluid-ounces, of which let half a fluid-ounce be taken in a wineglassful of water as directed.

When there is stridulous spasm with the cough he substitutes ozonic ether ʒij for the solution of the peroxide, or adds it to the mixture.

THE INFLUENCE OF VENOUS STASIS UPON THE SECRETION OF URINE.—PANETH, of Vienna, has made a series of experiments on this subject, and finds that a diminution in the secretion of urine occurred when the increase of blood pressure varied between 1.5 and 6.4 millimetres of mercury in the vena cava. Arterial tension diminished moderately after each narrowing of the lumen of the vena cava, but soon became again normal, and when the occluding ligature was beneath the liver, and the portal system was free from obstruction, the tension was normal. The effect of the venous stasis was independent of any consecutive variations in arterial tension. Ludwig had formerly explained the failure of secretion of urine from venous stasis by mechanical compression of the urinary tubules from the distended veins. If this was correct, Paneth thinks that no diuretics could increase a secretion diminished by venous stasis. The following experiment demonstrates the point in question; an injection of nitre causes profuse diuresis to succeed lessened secretion when the arterial tension is kept at a low degree by chloral hydrate.—*Fortschritte der Medicin*, February 1, 1887.

THE ADMINISTRATION OF PHOSPHORUS IN RICKETS.—The administration of phosphorus and of phosphates in rickets has been recommended on the ground that in the diseased bones the earthy phosphates are greatly deficient, and that, introduced into the system, these substances will supply the deficiency. Phosphorus, as is well known from the researches of Wegner, when given to growing animals, renders the developing cancellous tissue of the bones denser than natural, more like the compact tissue; even in adult animals, a similar change takes place. These results are independent, as Wegner showed, of the presence of excess of phosphates, for they occur when phosphates are absent from the food. Although, therefore, the reason for the administration of phosphorus in rickets is well grounded, medical men hold very different opinions as to its utility in that disease. Some have given it with cod-liver oil; as in Kassowitz's phosphorized cod-liver oil, which contains 0.01 per cent. of phosphorus. The objection to this mode of administration is not only that the phosphorus tends to deposit on standing, and thus a variable and even dangerous dose may be given, but it is impossible to say how much benefit (if any) that ensues is due to the oil, and how much to the phosphorus. A better mode of administration has been devised by Hasterlik. Phosphorus (0.01 per cent.) is dissolved in bisulphide of carbon (0.25 per cent.), and one hundred parts of water were added; one teaspoonful is given twice daily, constituting a dose of 0.0001 gramme in the day. The bisulphide of carbon not only acts as a solvent for the phosphorus, but has, according to Dujardin-Beaumetz, a beneficial effect in intestinal catarrh, and might thus be of service in the early stages of rickets. How far this preparation is beneficial in this disease has not yet been sufficiently ascertained.—*British Medical Journal*, February 19, 1887.

TUBERCLE BACILLI IN STRIPED MUSCLE.—OLIVER has carefully examined a case of tuberculosis of the heart-muscles and of the muscles of the back, and has found that the bacilli are in no direct relation with the muscle substance itself. The development of the tubercular progress goes on in the intermuscular connective tissue, and it destroys the normal muscular substance by pressure, atrophy, and the infiltration of the poisonous products of the bacilli.—*Fortschritte der Medicin*, February 1, 1887.

INOCULATION OF TUBERCULOSIS IN A CHILD.—EISENBERG, of Warsaw, reports the following case where tuberculous infection followed the Jewish custom of circumcision, and the application of the lips to the wound to stop hemorrhage.

Two months after circumcision enlarged inguinal glands were observed, and four months after inoculation the child was brought for treatment. The general condition of the patient was good; on the foreskin was an ulcer surrounded by a yellow, deeply infiltrated exudate, and upon the frenulum an ulcer as large as a pea. The inguinal glands had become greatly enlarged, the integument over them was much thinned, and one of the glands had ruptured, giving vent to a watery fluid containing cheesy masses. Behind the left ear there was also a large, fluctuating abscess. The lungs, intestines, and skin were normal. Antisyphilitic treatment

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failed to alter the conditions. The child died from erysipelas and extension of the buboes.

The examination of a portion of the foreskin and matter from the glands revealed the presence of tubercle and bacilli.

The only inference justifiable is that the circumcisor was tuberculous, and that his sputum contained bacilli. Eisenberg cites twelve parallel cases in the literature of the subject.—*Centralblatt für die gesammte Therapie*, February, 1887.

EXTIRPATION OF THE SPLEEN.—At the recent Congress of Russian medical practitioners, DR. A. G. PODREZ, privat-docent in Kharkoff, read a paper on extirpation of the spleen, including the notes of a case in which he himself had recently performed this operation. The patient was a woman with ague-cake, associated with ascites and extreme cachexia. The operation was performed on the 22d of November last; the patient subsequently went on well, being able to get up on December 10. The weight increased and the ascites disappeared. On the 16th, however, she had a rigor, and the urine contained a large quantity of albumen and hyaline casts. Death occurred on the 27th, and was due, as shown by the necropsy, to diffuse parenchymatous nephritis. The total number of cases of extirpation of the spleen collected by Dr. Podrez (including his own) is forty-two. Of these, one was performed in 1549 by Saccharelli, and one in 1711. The rest all belong to the present century. If his own case is reckoned as a recovery, the mortality is 73 per cent.; if otherwise, the mortality is 76; the recoveries being twelve or eleven out of the forty-two cases, according as this is or is not reckoned as belonging to that category. The cause of the eleven deaths was septicæmia in one case, peritonitis in one case, and hemorrhage either during or shortly after the operation in all the others. Dr. Podrez thinks that an improved method of performing the operation is required in order to obviate the tendency to hemorrhage. It is also to be desired that, by means of further observations, the indications for the operation in cases of enlarged spleen associated with both ague and leukæmia may be defined.—*Lancet*, Feb. 26, 1887.

HERNIA OF THE CÆCUM.—FREDERICK TREVES, F.R.C.S., Surgeon to the London Hospital, in the *British Medical Journal*, February 19, 1887, reports two cases of hernia of the cæcum in a paper of which the following is an abstract.

He comments upon the statement made in most modern text-books in English and French that these herniæ have no sac, and shows that cæcal ruptures are, except in a few instances, always provided with a sac in whose interior the gut is situated. There is also very little evidence to show that the cæcum may descend into the scrotum or crural region entirely bared of peritoneum. In general, museum specimens and unrecorded cases show that the rupture is much more common in males than in females, occurs on the right side, and is practically limited to adults.

In the cases with perfect sacs that part of the cæcum and colon is protruded that would naturally have been free and covered by peritoneum, while in the abdominal cavity. It is to be noted that in these cases the peritoneum that lines the iliac fossa is actually drawn down, as Scarpa believed. This is shown by the fact that the line of reflection of the peritoneum from the colon to the parietes, instead of being about the level of the iliac crest, will be just within the inguinal ring.

An incomplete sac, when it exists, may be formed also in this manner. The cæcum protrudes as a free segment of gut. It alone occupies the sac. Some loops of small intestine now descend, the sac increases, and in its growth drags the peritoneum from the hinder wall of the cæcum.

The cæcum may be protruded alone, or with it may be coils of ileum and omentum. In such cases the cæcum will usually lie to the right, the ileum to the left, and the omentum between the two.

Of the clinical characters of the cæcal hernia there is little to be said. It is usually irreducible or difficult of reduction.

The hernia is frequently in the condition known as that of incarceration or obstruction, and, when so affected, it appears to present no distinctive symptoms. It then compares with a loop of transverse colon obstructed within the sac of an umbilical hernia. The rupture may be strangulated, but this condition does not appear to be so common as that just named.

TREATMENT OF DIPHTHERIA BY PILOCARPINE.—DR. LAX has treated a number of patients during an epidemic of diphtheria with pilocarpine, and with very good results. In six weeks sixteen children were attacked by diphtheria; of these the first six had been treated by cauterization with a solution of silver nitrate, three per cent., and gargles of potassium chlorate; the results were four cures and two deaths. The ten other patients were treated exclusively by pilocarpine and all recovered, although some of the cases were very severe.

Under the influence of pilocarpine the mucous and salivary secretion greatly increased; great quantities of diphtheritic membrane were expelled by the throat and nose; respiration became more free; fever disappeared; the children regained appetite, and recovered in from three to five days, at the close of the attack all manifesting a characteristic eruption of herpes labialis. The following is the formula employed by the writer:

℞.—Pilocarpin. hydrochlorat.	gr. ⅛ to ⅜.
Pepsinæ	gr. 10 to 12.
Acid. hydrochloric.	gtt. 2 to 3.
Aquæ destill.	℥17½.

Of this mixture a teaspoonful or tablespoonful was taken in wine, and warm fomentations were applied to the throat. At the end of the third day the diphtheritic membrane upon the tonsils and pillows of the fauces had disappeared.

Guttmann has treated in a year and a half eighty-one cases of diphtheria by pilocarpine without the loss of a patient. Gelsner and Dilewshy have also had good results in desperate cases with this treatment. The formula given may be varied as each case indicates, and also its dosage.—*Journal de Médecine*, February 6, 1887.

A CASE IN WHICH THE URINARY BLADDER WAS TWICE RUPTURED, THE FIRST TIME BY AN INJURY, THE SECOND TIME—SEVEN YEARS AFTER THE FIRST—BY THE GIVING WAY OF THE CICATRIX.—MR. HENRY

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MORRIS, F.R.C.S., reported to the Royal Medical and Chirurgical Society, on February 22, 1887, the case of a man, æt. thirty-six, who had been drinking at a public house on the evening of June 4, 1879, when a struggle ensued, and his opponent threw him and knelt with violence upon his abdomen. All the symptoms of peritonitis and rupture of the bladder were excited, and the patient was admitted into the Middlesex Hospital on June 6, 1879. The treatment consisted of hot fomentations to the abdomen, half a grain of opium in a pill every six hours, and the retention, just within the neck of the bladder, of a gum-elastic catheter. He recovered perfectly, and left the hospital on July 10, 1879.

He applied at the hospital again on August 4, 1886, and gave the following account: On August 2 he had been at a "bean-feast." On the following morning his bowels acted and he passed some urine, but the latter act was attended with some pain. From this time pain increased, and in the evening he was unable to micturate. He vomited frequently, and had had hiccup since the onset of pain, until the afternoon of August 4, 1886, when a catheter was passed and nearly three ounces of bloody urine were withdrawn. He was then admitted as a case of peritonitis and suppression of urine.

On August 5 about one pint of thick, purulent, and slightly blood-stained urine was drawn off. At 7 A. M. on August 6 he passed a little flatus and a large quantity of urine, and suddenly became very sick. Soon afterward he was quite collapsed; his abdomen became very distended; he never rallied, and died at 11.5 A. M. on the same day.

At the post-mortem recent general acute peritonitis was found, and in the pelvis there were fifteen ounces of purulent urine and a quantity of lymph. A band an inch and a quarter long united the fundus of the bladder with the rectum. The vesical end of this band was hollowed out into a slender funnel, and through a rupture in it close to the bladder a string of mucus was projecting. Slight pressure caused purulent urine to ooze from the bladder through the rent into the peritoneal cavity. The rectum, bladder, and penis were removed *en masse*, and were submitted to a committee consisting of Mr. Savory, Mr. Bryant, and Drs. Goodhart and Kingston Fowler, who reported that in their opinion "the specimen exhibits all the features which might be expected at a remote period after a rupture of the bladder."

This case, in the first instance, was reported in 1879 as one of recovery from rupture of the bladder. It is now brought before the Royal Medical and Chirurgical Society because in its completed form it affords conclusive proof that an intraperitoneal rupture of the bladder is not necessarily fatal, but may be recovered from under the simple treatment employed in this case, provided the urine at the time of the rupture is of normal composition. The case is believed to be unique, in that it furnishes us with the post-mortem appearances of the bladder some years after recovery from an intraperitoneal rupture of the coats of that organ.

INFLUENCE OF DRUGS GIVEN TO NURSES UPON THEIR MILK.—SCHLING has made a series of experiments upon this subject, and has reached the following conclusions:

Salicylate of sodium, dose varying from 30 to 45 grains; when the child was nursed in less than an hour after the nurse had taken the drug, the salicylate was not found in the child's urine; it disappeared in 24 hours after administration, and was found an hour after the nurse had taken it. Elimination ceased at the same time with nurse and child.

Iodide of potassium was found in the milk by its characteristic reactions for 24 hours after ingestion. With the child, elimination continued 72 hours; with the mother, 44 hours.

Ferrocyanide of potassium gave a characteristic reaction in the urine of the nurse, and no reaction in that of the child.

Iodoform, when employed upon wounds of lying-in women, produced iodine in the milk and urine of the mother, but not always in the urine of the fœtus.

Mercury was transmitted to the milk of the nurse in but very small quantities, and irregularly; its presence seemed to depend upon the quantity of milk reabsorbed; the common idea that one who is taking mercury must not take acids, was entirely disproved.

Chloral was given in doses which ranged from 25 to 45 grains. This produced a maternal sleep of two hours; there was no effect upon the child. If the infant is feeble, and prematurely born, it is well to wait two hours, but no longer, before putting it to the breast.

Atropine—the sulphate in solution of 1 to 100. Hypodermatic injections of $\frac{1}{15}$th to $\frac{1}{20}$th of a grain produced decided maternal symptoms. Dilatation of the child's pupils followed, which disappeared in 24 hours; it should be employed in very small doses only.

As far as the influence of the febrile state of the mother upon the child was concerned, in the great majority of cases, the milk of a fevered mother had no effect upon the child; in some rare cases of persistent and severe fever, the child's temperature curve resembled that of the mother. Bumm has demonstrated, in a case of mastitis, the passage of micrococci in the milk into the digestive apparatus of the child.—*Journal de Médecine*, February 20, 1887.

TUBERCULOSIS OF THE FAUCES.—MR. L. BROWNE showed at a recent meeting of the Medical Society of London, a young woman, aged twenty, married, and the mother of three children, who was the subject of tuberculosis of the fauces and pharynx, extending to the posterior wall of the larynx and slightly involving the right arytenoid cartilage. The lung condition showed only incipient phthisis, but bacilli of tubercle were plentiful at the seat of ulceration. The patient had suffered on admission into the hospital on December 4th from dysphagia in such an extreme degree that she preferred not to take food. According to the method advised by Krause, of Berlin, the diseased surface, previously anæsthetized by cocaine, was scraped, and solutions of lactic acid, 20, 40, and 60 per cent., were applied daily for twenty-one days. At the end of that period acute inflammation took place, on recovery from which the dysphagia was found to be absolutely relieved. In reply to Dr. Angel Money, he said that the case was regarded as tubercular by all who had seen it, and the typical bacilli were discovered.—*Lancet*, March 5, 1887.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, MARCH 19, 1887.

THE RADICAL CURE OF HERNIA.

IN *The Medical Record* for March 5, 1887, may be found a valuable paper by R. F. WEIR on the cure of reducible and irreducible hernias by Heaton's method of injection, and by the direct modern operation. The treatment by injection of various fluids has been comparatively seldom practised, and its merits have rarely been tested on an extended scale by competent observers. Hence, the procedure is, as a rule, dismissed with a few words in our treatises and text-books on surgery, and has been unfairly condemned.

The method of Heaton, as is well known, consists in throwing into the connective tissue of the inguinal or femoral canal, after the reduction of the rupture, from ten to twenty minims of a mixture composed of half an ounce of fluid extract of white-oak bark, thickened by the addition of fourteen grains of the solid extract of the same bark, and containing half a grain of morphia. Weir has performed the operation in 72 cases, all but 8 of which were inguinal hernias. Of the 64 inguinal hernias, the further history of the patients was traced in 35 cases, in 12, or 33 per cent., of which a cure was obtained. Adding to these the 36 cases, with 9 cures, recorded by Gay and Bull, 71 cases afford 21 cures, or a percentage of 29.5. This rate of success, along with the safety of the procedure, certainly justifies the conclusions of Weir that it is especially adapted to small reducible ruptures both of children and adults, and to recurrences after the failure of the open operation. In the latter class of cases the protrusion is usually small, and it sometimes happens that the treatment can be carried out without interrupting the vocation of the patient.

By far the larger number of ruptures which fall under the notice of the surgeon are unfitted for the treatment by injection, so that the practice of the present day is to resort to the modern open operation in old reducible hernias, in which bulk, discomfort, pain, temporary incarceration, or the interference with the usefulness of the patient call for aid. This operation consists, first, in exposing the sac and reducing its contents; secondly, in isolating the sac, ligating its neck, and removing the fundus below the point of ligature; thirdly, in pushing the stump into the abdominal cavity; and, fourthly, in approximating the refreshened edges of the ring with sutures. As the late Professor Gross was the first, in 1861, to suture the pillars of the ring, and Riesel was the first, in 1877, to ligate the sac and excise its fundus, the procedure may be entitled the Gross-Riesel operation, of which other surgeons have made some modifications, particularly in regard to the treatment of the exposed sac. These modifications are intended to lessen relapses, which are due to the weakness of the cicatrix in the serous membrane.

Among the improvements in the management of the sac, the following may be mentioned, in all of which the sac is merely separated from its connections, and not cut away. Obliteration of the serous surfaces by a row of sutures, practised by Hahn; torsion of the fundus of the sac, after ligating its neck, and transfixion of the sac by the intercolumnar sutures, to prevent its untwisting, as devised by Ball; ligation of the neck of the sac, along with the transversalis fascia, and intercolumnar suture of the sac, as in the preceding method, instituted by Hardie; and wrinkling up of the sac, or throwing it into a series of transverse folds, by transfixing it with a catgut thread, through which the internal ring is blocked, as devised by Macewen. In addition to these modifications, Southam ties the sac, with its included omentum, with a double ligature, cuts off the lower portion, and leaves the upper portion to act as a plug which prevents the redescent of the gut. Of these various methods of managing the sac, that of Macewen has given the best results, as 25 cases of free inguinal hernia show only 9 relapses, a percentage of 36 per cent., and 23 cases of strangulated inguinal and femoral hernias afford only 1 relapse, or a percentage of 4.3.

In estimating the value of the modern direct operation, the questions of recurrence and of mortality must be considered. In a general way it may be said that relapse occurs in about one-fourth of the cases; but it must also be stated that in four-fifths of the failures there is a marked improvement, the protrusion being slight, with little tendency to increase, and readily controlled by a truss. Of 379 operations for free or non-strangulated inguinal hernia, collated by Weir, 16, or 22 per cent., perished,

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and if from these be deducted the deaths from preventible hemorrhage—increased experience having taught how this may be avoided—the mortality is reduced to 2.9 per cent. Of the 36 operations for femoral hernia, all recovered.

From the facts presented by Weir, we may conclude that Heaton's operation can be safely resorted to in small reducible hernias, with a fair prospect of success; and that painful, unmanageable, or irreducible protrusions, which render life miserable, or unfit the subject for gaining a livelihood, should be met by the modern direct operation.

THE TREATMENT OF PNEUMONIA.

THE daring experiments of Hughes Bennett, Skoda, and Deitl, placed the treatment of pneumonia on a rational basis by making a knowledge of the natural history of the disease the starting-point for medication. Thirty or forty years ago it required no little courage to treat cases of pneumonia without bleeding and antimony, but as a result of the teachings of the Edinburgh and Vienna schools, the expectant or symptomatic method of treatment has gradually replaced the more active antiphlogistic plan of the past generation. To this has contributed in no small measure the growth of a belief that pneumonia is a specific, self-limited disease, of which the lung trouble is only a local manifestation.

We have presented our readers, in this and the two preceding numbers of THE NEWS, with a summary of the plans of treatment pursued in the leading hospitals of Philadelphia, New York, and Boston, and on looking over it one is struck with the uniformity in principle underlying the varying details. In each instance the plan followed is essentially *symptomatic*, and, where not expressly stated, it is tacitly admitted that we have no specific remedies against this disease. Cases of moderate severity do well with little or no medication, while the severer forms demand measures which allay fever and support the strength, systemic and cardiac.

It is interesting to note how little stress is laid upon the value of arterial sedatives as aconite and veratria, both of which are still extensively used and specially relied upon in this disease by practitioners throughout the country. While of undoubted benefit in the early days, if employed indiscriminately and during the entire attack they may be harmful. We believe, however, that the more robust subjects in country practice stand these remedies better than the debilitated patients of the city, and more particularly of hospitals.

Upon the question of bleeding we should have liked fuller details as to indications and the frequency with which it has been employed at the different clinics. We are firmly persuaded that there are many fatal cases each year which venesection might have saved. The conditions which call for it are those laid down by Dr. Bartholow—"at the outset, in a vigorous subject, when congestion is increasing in depth and extent; and at the approach of the crisis, when the heart labors in consequence of overfulness of the veins and ischæmia of the arteries." The inhalation of oxygen recommended by Dr. Loomis in the œdema, has an important use whenever, as shown by the lividity, the blood is imperfectly oxidized.

With the recent endeavors to bring pneumonia into the category of parasitic diseases, we have attempts to establish an anti-parasitic plan of treatment, but so far without any special success. It may be, however, that to the generation which will follow at the hospitals the men whose practice we have given, the symptomatic and expectant plan at present in vogue will appear as crude and unscientific as does to us the active antiphlogistic treatment, with venesection *coup sur coup* and antimony to repletion.

SUDDEN DEATH FOLLOWING LABOR.

THE general sentiment of humanity does not accord with that of the Roman emperor, who, when asked what death was the most desirable, replied that which is the most sudden. Desirable as such a death may be for the individual who, with scarce the interval between the lightning's flash and the thunderbolt, departs, it is not desired by those who witness it. But there is a class of cases in which this sudden ending of life must be very sad for the individual, if time permit reflection, while it overwhelms the nearest relatives; the mother, "when she feels for the first time her first-born's breath," when a new and the strongest of earthly ties must be suddenly sundered, naturally above all others, shrinks from departure; and should she die, there is a profounder sorrow than when death occurs under almost any other conceivable circumstances.

Probably the most frequent cause of sudden death following labor is uterine hemorrhage, and many instances have been recorded where the so-called flooding has been fatal; fortunately, death from this cause can in a large number of cases be prevented by timely and intelligent professional care. Eclampsia, pulmonary embolism, the entrance of air into the uterine veins, nervous exhaustion, and heart-failure are also causes. Another cause has recently been suggested, but we think without just ground, in the report of a case published in the *Journal d'Accouchements* of the 15th of February.

The case was reported to the Medical Society of Amiens by TRÉPANT, surgeon to the hospital of Nesle. A woman, thirty years of age, of good constitution, and who had previously given birth to two

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healthy and living children, had in each of these labors a hemorrhage which threatened her life, and the accident was followed each time by serious and protracted metro-peritonitis. Three years and a half after the second labor the third pregnancy occurred; during this her general condition was good, and there was no cardiac or renal disorder, but she was very apprehensive of danger in connection with delivery of the placenta. Her labor was easy, somewhat rapid, and she was delivered of a living child; immediately after the birth of the child nine grains of ergot were given, and the expulsion of the placenta soon followed, but was attended with a slight loss of blood which was readily arrested, a second dose of ergot being given. After the completion of the toilet of the external genital organs, she was removed from the couch upon which she had been confined, and placed in bed; her expression was good, the uterine contractions were quite manifest, the uterus was well retracted, the pulse was full and regular, she was contented and happy, and wished to see her baby.

Her condition was so favorable that the accoucheur was preparing to leave, when she suddenly exclaimed she could not see, and this was followed by paroxysms of tossing her arms and restless movements, with plaintive outcries. There were no convulsions, and no rigidity of the muscles; the face was not swollen or discolored, there was no frothing at the mouth; the pulse was normal and rather full, the uterus well contracted, and there was neither internal nor external hemorrhage, but the skin became cold; the respiration was rapid, and intelligence perfect; she complained of a feeling of oppression and difficulty of breathing, and especially of her inability to see; she vomited a little fluid which was discolored by the ergot. She lived three hours and a half, during which time occasional remissions in the severity of her symptoms occurred, and she died from well-marked asphyxia.

Trépant, in speculating upon the probable cause of death, suggests that it was ergot, there possibly being a peculiar susceptibility to it, for the quantity of the drug given was but little more than fifteen grains. But here we have one weak hypothesis, that of an extraordinary idiosyncrasy, to sustain another of like character. It is hardly possible that a fatal result could occur in a few hours from the quantity of ergot employed, nor were the symptoms those of ergot poisoning.

No post-mortem examination was made, and while even after it the cause of death might have remained unknown, yet it would have negatived certain possible hypotheses. Some of the symptoms closely point to hemorrhage, and this hemorrhage may have been from rupture of an abdominal vessel, or from rupture of the uterus. Again, the hypothesis of nervous exhaustion cannot be entirely excluded, for while dimness of vision is so characteristic of post-partum hemorrhage, yet it is possible for it to be present in the condition previously suggested. We are disposed to think that the patient's mental condition may have contributed to the fatal issue. It would be quite rational to suppose that the fear of dangerous hemorrhage, which she had entertained during pregnancy, would readily recur when unexpected blindness and prostration were manifested—symptoms the significance of which, doubtless, she knew too well from her previous experiences—and this fear assist in making the depression greater.

But whatever interpretation of the etiology of the fatal result be given, the case is a warning to the obstetrician to be ever watchful so as to ward off any danger of death to the puerpera which may plainly be presented, and also to be prepared for the possibility of witnessing, in very rare cases, this sad event without being able satisfactorily to explain its cause.

HEPATIC PHLEBOTOMY AND PUNCTURE.

AT the Brighton meeting of the British Medical Association GEORGE HARLEY read a paper on "Hepatic Phlebotomy," in which he urged the propriety of abstracting blood directly from the liver in cases of congestion or inflammation. The communication appears in the *British Medical Journal* of November 13, 1886, and in the issue of January 15, of this year, he again takes up the subject. In several of the recent numbers there has been a lively discussion between Dr. Harley and certain army surgeons as to priority in this procedure. The case in which this operation was performed was one with an enlarged and indurated liver, the result of hepatitis. The lower part of the body was anasarcous, the abdomen was filled with fluid, and in spite of all methods of treatment, including tapping, the patient was, when first seen by Dr. Harley, in a perfectly hopeless state. The upper part of the liver was pierced with an eight inch long trocar, of a diameter between a No. 2 and No. 3 English catheter, which was thrust in up to its hilt. On withdrawing an inch or two, a stream of blood immediately issued, and twenty ounces were abstracted with the greatest benefit. From the day of the operation the liver became reduced in size, and, with the aid of tapping and the administration of the resin of copaiba, the ascites and general anasarca disappeared in about two months, and the patient made a good recovery.

It seems clear from the discussion which has taken place that McLean, of the Army Medical School, at Netley, has long advised direct depletion of the liver, and some of his pupils have resorted to it with benefit in cases of engorgement of the liver. It is by no means always a harmless procedure, as a case is recorded by Boyes Smith in which fatal

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hemorrhage into the abdomen followed the exploration of the liver for abscess. As a rule, however, very little blood comes during aspiration of the liver, and we agree with Surgeon Major Quill when he says that "the possibility of abstracting eighteen or twenty ounces of blood from the liver is quite exceptional; more commonly five or six ounces, or frequently not even an ounce can be obtained."

Harley also recommends puncture of the capsule of Glisson as a remedial measure in cases of congestive hepatic hypertrophy, and gives two cases in which benefit followed the operation. The punctures, from three to six in number, are made in the anterior parts of the liver, in the right or left lobe, according to which is the most gravely affected. The trocar is withdrawn and the canula left in the wound for a few minutes, to permit of the oozing of any liquid. This is a method which has long been followed by the Chinese, who use, however, solid acupuncture needles, but the effect is practically the same.

It is difficult to say just how far these measures can be recommended. The experience of army surgeons seems favorable, and these papers have served to bring out some very interesting points in their practice. We have so little faith, however, in the efficacy of this method, that Harley's suggestions seem to us to require strong backing, and we shall look with interest for further accounts of this plan of treatment.

THE Kings County Medical Society has just made arrangements for the purchase of a piece of property, No. 336 Bridge Street, Brooklyn, and it will there take up its abode after May 1st. It consists of a private house, with sufficient ground in the rear to accommodate a future extension when that shall become necessary; the cost was not far from $10,000. The trustees of the building fund, Drs. Thallon, Matheson, Jewett, Hunt, and Hutchins, have authority from the Society to collect and apply to the property $5000 more than the cost, for the equipment of meeting-rooms and library within this new home of medicine.

M. DUCLAUT, Professor of Biological Chemistry at the *Faculté des Sciences de Paris*, and one of the most distinguished pupils of M. Pasteur, has just brought out a journal which is to be specially devoted to gathering all information concerning microörganisms. The name of the new journal is *Annals of the Pasteur Institute*. It is to be regretted that this title appears to lend a somewhat limited character to M. Duclaut's journal, for the editor, we are informed, fully intends publishing all articles of value that may be contributed, whether they emanate from M. Pasteur's laboratory or elsewhere.

The first number contains an important letter from M. Pasteur on rabies, in which he treats the question from his own point of view, and a paper of MM. Nocard and Roux, upon the cultivation of the bacillus tuberculosis.

We are confident that this publication will meet with the success it deserves, for it, with the recent *Centralblatt für Bacteriologie*, supplies a want that has been markedly felt amongst our scientific publications.

DR. ABBOTT, of the Massachusetts Board of Health, reports the results of his investigation into the origin of recent cases of smallpox among the workers at the paper-mills at Holyoke. He traces the cases to imported linen rags that had passed through the New York Custom House, and were marked "disinfected." This fact may be expected to arouse attention to the present system of treating foreign rags, and to reopen the discussion of their fumigation at the seaports, which last year gave the Treasury Department so much trouble.

THE Supreme Court at Washington has handed down a decision that an insane person who takes his own life does not "commit suicide," and that life insurance may be recovered even though the policy may provide that it shall be void if the insured person shall die by suicide: self-killing by a lunatic person is by law to be regarded as an accidental death.

DR. WILLIAM GOODELL resigned last Tuesday the post of Physician-in-Charge of the Preston Retreat at Philadelphia, which he has held for twenty-two years. Dr. Joseph Price was elected as his successor.

AT the twenty-sixth annual commencement of the Bellevue Hospital Medical College, of New York, held on Monday evening, the degree of M.D. was conferred on one hundred and thirty-four graduates.

AT the fiftieth annual commencement of the University of Louisville, held on March 1st, the degree of Doctor of Medicine was conferred upon eighty-seven graduates.

SOCIETY PROCEEDINGS.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, February 28, 1887.

THE VICE-PRESIDENT, CHARLES K. MILLS, M.D., IN THE CHAIR.

DR. I. N. KERLIN read a paper on

MORAL IMBECILITY.

The histories of four children were presented: the first was illustrative of the incipient prostitute; the sec-

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ond of the incipient burglar; the third, a religious hypocrite and egotist; and the fourth a confirmed juvenile tramp and incipient confidence man.

The first case was one which had been reported by Dr. J. C. Carson, of Syracuse. E. P., aged fourteen years, was admitted to the New York Asylum for Idiots, March 6, 1886. She presented no special peculiarities in appearance, and was described as disobedient, obstinate, very passionate, and a little given to pilfering. At the age of eight years she had been adopted into a respectable family. Nothing of any consequence could be obtained with reference to her antecedents. When brought to the Asylum, she acknowledged that she had quarrelled with the folks at home particularly about church and school matters. She stated that she understood the purposes of the institution, and declared that she believed that she had the worst temper of any person in the world, but she did not think that she was "a fool or an idiot." For a week she did well. After this scarcely a day passed without trouble between herself and others, or between others brought about by her instigation. She finally caused so much trouble that it was found necessary to remove her to another institution. The case was reported by Dr. Carson to show how closely the insane condition could be approached and maintained, and yet not really exist. Neither was she in any sense imbecile, unless *morally* so. There was a partial loss of self-control and such irritability of temper and tendency to go wrong that for her own interests and protection, as well as that of society, there can be no question that she required custody of some kind. She had reached a time of life when some restraint upon her liberty was absolutely necessary to save her from ruin or insanity.

The second case was that of Tom McK., aged twelve years, who was admitted to the Training School, at Elwyn, November 9, 1886. He was described as incorrigible. There was nothing in his appearance to suggest unlikeness to normal boyhood. He was but little more backward in his studies than would be any neglected boy. He was full of mischief and deceit. The boy promptly responded to school instruction and during the succeeding four years made fair progress. Throughout the seven years of his pupilage, however, there were seizures of irritability and excitement occurring periodically and of increasing intensity, the longer he remained in the institution. He was then discharged. Within six months of his discharge, he had been arrested and had been found guilty of two or more petty burglaries. This incorrigible moral imbecile was the son of a man of the most abandoned character. His mother was recently discovered in the insane department of a county-house, one of the saddest of dements.

The third case was that of G. L., admitted July 12, 1883, a sweet-faced, intelligent, lovable boy, whose gentle manners instinctively won confidence, and made his new-found friends at the institution believe that the boy had been improperly sent there by a mother too eager to relieve herself of the proper relations to her own child. The boy was described as kind-hearted, quick-tempered, very dull of comprehension, fond of working with tools, not malicious, but destructive. The boy seemed to do well for three months. Notwithstanding the good opinion of his teachers, he was an object of aversion to the boys with whom he was associated. He devoutly knelt at his bedside every night and stood well in the Bible class. On a quiet Sunday afternoon the carpenter shop connected with the institution was found to be in flames. After a careful examination, the evidence pointed to one of two or three boys. As a result G. was placed in confinement with the hope of eliciting some confession from him. Through three weeks the boy held out against all persuasion and the authorities were about to give up when, in a letter to his mother, he confessed that he had started the fire to see how the fire machines were used. It was afterward learned that he had fired his mother's house on one occasion. The boy was then placed in the House of Refuge, where he played his *rôle* of sweetness so well that it was sincerely believed that the confession had been a forced one.

The etiological history of this case is interesting. The paternal grandmother was a fanatic on the subject of religion. The eldest son of this grandmother believes that he lives without sin, and the boy's father is of the same belief and has been at all times deranged on the subject of religion.

The fourth case was that of F. L., aged twelve years. He had attended school in the winter and in summer had worked on a farm. He could read fairly well, and write an intelligible letter. Scarcely a symptom of intellectual or moral infirmity had been discerned in this boy, when, without known reason, he eloped. Writing to his father, the reply was received that he had spent hundreds of dollars in bringing him back from just such escapades. A few months later a newspaper was sent to the Institution from Escanaba, Mich., relating the history of a boy who had appeared in that town and had excited much interest. This boy proved to be the runaway. He was returned to the Institution. At the end of six months he again left for parts unknown. After some months he was again returned from Chicago. Again, without reason, he suddenly eloped, and is at present somewhere within a radius of fifty miles of the Institution, occasionally appearing to acquaintances, but mysteriously fading away.

DR. H. C. WOOD said whether we call these cases examples of moral imbecility, or give them some other name, we must recognize that there is a depravity which is the result of heredity or some imperfect development of the nervous system. Recently he had under his notice a case which parallels those reported by Dr. Kerlin. A woman, belonging to a respectable family, went astray at a very early age, and became the mistress of a married man, bore eight children, and died a drunkard in the gutter at the age of twenty-eight. Of the eight children, all, with the exception of one, died in infancy. At the death of the mother, this child, a girl, was taken by a friend, who endeavored to train her in a respectable manner. The attempt seemed to be successful until the age of thirteen was reached, when, three months before the appearance of menstruation, she ran away, and was found in a house of prostitution. Since then her history has been a constant effort to save her, and a constant return to bad sexual habits. It finally became necessary to place her in the House of Refuge. There was no tendency to drink in this instance, so that the love of liquor had no part in the precocious overpowering sexual desires.

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DR. E. N. BRUSH said that the history of the young woman brings to mind a case which had gone, as Dr. Kerlin says they may do, a little further. The girl not only became a public prostitute, but had passed into a condition of marked insanity. The mental disturbance was as much in the line of moral obliquity as anything else. She was very active in causing mischief among the attendants and other patients at the asylum. At one of the visits of a committee of inspection she trumped up a story that the engineer, the apothecary, and one of the physicians, had come to her room at night and violated her person. She got one old gentleman very much interested in her case, but before he got through with his investigation disgusted him by making a similar charge against him.

DR. CHARLES K. MILLS believed that the term moral imbecility is a good one to apply to a certain line of cases, as it has a distinctive meaning. From his experience outside of institutions he could give at least a score of cases similar to those described by Dr. Kerlin. In the case of a boy recently seen, there was a distinct history of neurotic conditions and of insanity in other members of the family. Almost all the cases of this kind show a marked element of heredity. The question is not whether or not these subjects have any intellectual aberration at all, but whether or not the moral aberration vastly predominates. If so, we have a right to class these cases with those of moral imbecility and moral insanity.

DR. JAMES HENDRIE LLOYD thought that there is a decided distinction between depravity and insanity. Practically, we never find a case of pure moral lesion. There is always an intellectual defect, and frequently a marked congenital defect of the whole brain organization.

DR. KERLIN asked if we shall be more grateful to Dr. Lloyd if for the terms moral insanity and moral imbecility he will give us expressions defining any better the conditions which we find in a large percentage of so-called feeble-minded persons, in many of the commitments to Houses of Refuge, and in a larger proportion still of those found in such institutions as the Reformatory at Elmira, New York.

The difference between those who argue for and against moral insanity, is a disagreement about the name, rather than about the existence of a condition accepted by most Germans and many English writers on psychiatry, and supported by Ray, Spitzka, Bannister, and many others in America. During the past few years there seemed to be a growing advance in sentiment among our profession, and in the public mind, with reference to this subject. Dr. Brockway, of the Elmira Reformatory, states that he discovers among his prisoners only six per cent. in whom the moral sense is normal. He prefers to speak of many of his cases as moral imbeciles. It is true that we are using this term for the want of something better; but it certainly defines to the common understanding a class of individuals in whom there is a lack of self-control, a weak volition, and failure in, if not an absence of, the higher elements of a full cerebral development, for which we know no more suitable appellation than moral imbecility.

Adopting these views, their practical application soon comes in a sequestration of many whose liberty now is only a vicious license. The tendency of the Elwyn Institution is toward life detention of all such cases. There they refuse for them the ordinary routine of education because they believe that in educating moral imbecility after the current notions of education, they are training experts who may afterward figure in the *rôle* of so-called moral insanity; that by giving such subjects any considerable school education they are only arming them for more serious exhibitions of evil. It is a radical, often inherited condition, just as incurable as inherited forms of idiocy or intellectual imbecility. When we shall arrive at this definite conclusion about cranks, habitual drunkards, and the like, and fully apply it, and when we introduce the indeterminate sentence for crime, such sequestration of the morally and socially unfit will be brought about that our human stock will be improved by keeping out of the national blood some terribly bad strains.

It is a noteworthy fact that in most, if not all, the cases which have been determined to be moral imbeciles, there is a neurotic history in the family antecedents; epilepsy, monomanias, inebriety, crime, are frequently the correlative exhibitions in families from which proceed these children of keen intellectual precocities, but inveterate tendencies to vagrancy, prostitution, and lawlessness.

DR. A. W. WILDMARTH then read a paper on

THE PATHOLOGY OF IDIOCY.

largely based on the post-mortem records of forty cases observed at the Pennsylvania Institution for Feeble-minded Children.

DR. FRANCIS X. DERCUM then reported the following

CASE OF TIC DOULOUREUX OF TWELVE YEARS' STANDING SUCCESSFULLY TREATED BY LARGE DOSES OF THE SALICYLATES.

The patient, Mrs. K., aged fifty-two, was first seen November 30, 1886. She stated that she suffered from tic douloureux, and as she spoke she was constantly interrupted by frightful paroxysms of pain. Twelve years ago, when apparently in good health, she had been attacked with pains in the right side of the face. This she attributed to a cold. The pain gradually increased in intensity. The suffering had practically been continuous, the paroxysms sometimes occurring many times a minute, again only four or five times an hour. She was always worse in cold and damp weather. The distribution most affected was that of the superior maxillary nerve. The inferior maxillary was also decidedly affected, but the ophthalmic division did not appear to be at all involved. During the entire period there had been but one remission. This had occurred two years ago, when she suffered from a severe attack of rheumatism, affecting mainly the lower extremities. The attack lasted eight weeks, and during this time she was free from the tic douloureux, which, however, reappeared as the rheumatism subsided. The operation of nerve-stretching was suggested to her.

The previous history suggested a possible connection with rheumatism, and it was decided to treat the case on this basis before resorting to operation. Oil of gaultheria, in fifteen drop doses, every three or four hours, was ordered. Within four days there was decided improvement. The remedy was continued up to December 20th, when, as a result of indiscretion in diet, she

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suffered from diarrhœa. The oil of gaultheria was now stopped. December 24th she ventured out of the house, the day being cold. This was followed by a mild recurrence of the tic. She again resumed the oil of gaultheria, which, two days later, was replaced by salicylate of sodium, in twenty grain doses. Every trace of the tic douloureux now disappeared. The use of the salicylate was continued until January 12th, when it was finally abandoned. Since then she has been exposed on numerous occasions, and once caught a severe cold, giving rise to bronchitis, but with no return of the tic. At the present writing (February 28th) she is entirely well.

DR. CHARLES K. MILLS stated, in regard to the use of salicylate of sodium in rheumatic neuritis, he had found it one of the most valuable of remedies, and he recalled two cases in which it had been especially beneficial. One was a case of brachial neuritis, involving the entire arm, in a person suffering with diabetes. He got well after some weeks treatment under salicylate of sodium, in twenty grain doses, and hypodermatic injections of atropia and morphia, with blistering. The second case was that of a physician with rheumatic brachial neuritis, involving one arm, with great pain and stiffness, and also some paresis. He recovered under the same treatment. He has used salicylate of sodium with success in a number of instances.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, February 23, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. JOHN A. WYETH read a paper on

LIGATION OF THE EXTERNAL CAROTID ARTERY; A SYNOPSIS OF FIVE SUCCESSFUL CASES.

(See page 312.)

DR. MARKOE asked regarding the cause of the aneurism of the internal carotid artery, mentioned in the last case. The reader replied that it was due to atheromatous degeneration of the artery.

DR. SANDS remarked that Dr. Guyon, a French surgeon, was one of the first to prove that the arguments against the safety of the operation of tying the external carotid were unsound. He showed, in a paper written by him in 1863, that there was very slight danger to be apprehended from secondary hemorrhage. The cases then on record, as well as some additional ones, were tabulated by the late Dr. Longworth, of Cincinnati (a former pupil of Dr. Sands), in a paper published in 1873. In this paper the operation referred to was strongly advocated. The speaker added that he had tied the external carotid three times, the first case being that of a man who had extensive epithelioma of the face; chloride of zinc paste was applied, and caused such deep sloughing that a large vessel was opened behind the jaw, and such profuse hemorrhage resulted that it was necessary to ligate the external carotid; no anæsthetic was employed, as the patient was extremely weak.

In the second case he removed a tumor of the lower jaw, and had to contend with a very severe hemorrhage, which was found to be due to an accidental wound of the internal jugular vein, and an excision of a piece of the external carotid artery. In the third case the artery was tied on account of an aneurism about half as large as a hen's egg, which was supposed to involve the posterior auricular artery. The operation was performed five years ago, and though the patient recovered he was not completely cured—the tumor became smaller, but continued to pulsate.

The practice of tying the external carotid as a preliminary step before removing a tumor of the tongue, was certainly different from that usually followed, which is to tie the lingual *in loco*. The latter seems to serve the purpose equally well, while the surgeon can usually avoid placing a ligature on the vessel close to its point of origin. Removal of the parotid gland would seem to be a formidable operation as regards hemorrhage, but he was aware of no death from this cause; it is better, he believed, in this operation to tie the external carotid artery, when necessary, as near to the tumor as possible; that is, at a distance from its origin. In general, the speaker would always prefer to ligate the external, rather than the common carotid.

DR. STIMSON said that he had tied the external carotid once for epithelioma involving the side of the face; the operation was successful, but the patient succumbed to the disease. In regard to ligature of the artery as a preliminary measure before removing tumors of the parotid, the speaker thought, with Dr. Sands, that it is practicable to secure the vessel higher up, behind the angle of the jaw. In one case he had been able to remove nearly the entire gland without cutting the artery. Dr. Wyeth's last case suggested the interesting and important question whether it might not be proper to place a catgut ligature on an atheromatous artery, meaning by the latter term a vessel, the walls of which were softened, but not calcified; could it not safely be tied with catgut? There would, of course, be a greater chance of the subsequent formation of an aneurism near the ligature, but might it not be reasonably expected that secondary hemorrhage would not occur? When we remember how much more rapidly and perfectly tissues heal under our present antiseptic methods, why could we not venture, the speaker asked, to tie even an atheromatous artery in continuity?

DR. SANDS said that he had once assisted Dr. Lange in the amputation of a thigh in an old man. Dr. Lange thought that he would apply the dressings before removing the tourniquet, but he determined not to do so, and, on loosening the latter, profuse hemorrhage occurred, which was found to be due to the fact that the ligature placed on the main artery of the limb had cut through, in consequence of the vessel being atheromatous. The speaker himself had amputated a leg for senile gangrene, the arteries of which were so rigid from calcareous degeneration that they did not pulsate, but, on removing the tourniquet, there was free hemorrhage. The vessels were tied with catgut, and the patient did perfectly well. Dr. Sands agreed with Dr. Stimson that the danger of tying atheromatous vessels was much lessened since the healing of wounds had become more perfect. He would say that it was not unsafe to apply a ligature to such an artery, unless the latter was so soft and friable that it would cut through. In Dr. Wyeth's case there would have been no use in tying the internal carotid, as it was so extensively dis-

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eased. Simultaneous ligation of the external carotid and the common carotid for aneurism of the internal carotid produces practically the same effect as the application of a distal ligature.

DR. MARKOE said that he recalled a unique case, which had become historical, which threw light upon the subject under discussion. In October, 1845, Dr. J. K. Rodgers tied the left subclavian artery in the first part of its course, about one inch from its point of origin from the aorta; the patient lived fifteen days, and died from secondary hemorrhage from the distal part of the artery. The autopsy showed that the ligature had passed directly through an atheromatous plate, yet the artery on its proximal side was firmly plugged, and the usual changes which take place after ligature, had occurred normally, and effectively closed the artery. Shortly before this operation, Dr. Hoffmann had exposed the innominate artery in a case of aneurism, with the intention of tying it, but he refrained from applying the ligature, because the vessel was atheromatous. The patient subsequently died of hemorrhage from the aneurism; probably, if the artery had been tied, no bad result would have followed, even though it was diseased.

DR. WEIR said that he had applied catgut ligatures to calcified arteries in the cases of amputation for senile gangrene. It has been shown by English authorities that there is no danger in ligating such vessels, provided that the ligature is not tied too tight.

THE PRESIDENT thought that Dr. Wyeth had acted wisely in tying the external carotid first, because, if the ligature had been applied first to the atheromatous internal carotid, it would have cut off the possible chance of obtaining a good result after subsequent ligature of the external carotid.

DR. MARKOE asked the reader if he found the point of origin of the internal carotid.

DR. WYETH replied in the affirmative, adding, in response to a question from Dr. Sands, that the diseased vessel was of larger calibre than normal, having undergone a sort of general fusiform dilatation.

THE PRESIDENT asked if it was easy to identify the external carotid. The reader answered that he had experienced no difficulty after finding the bifurcation at the upper border of the ala of the thyroid.

DR. MARKOE said that he had tied the internal carotid with the common three times, and had found it without difficulty.

DR. WYETH remarked, in closing, that the cases which Dr. Sands had said were published by Guyon, had nearly all been reported by Maisonneuve. Several papers on the same subject had appeared previous to the one published by Longworth. The reader did not wish to be understood as recommending ligature of the external carotid as a preliminary measure in all cases of excision of the tongue for cancer. He, himself, generally tied the lingual artery, but in the case described, the muscles and floor of the mouth were so much involved, that it was necessary to remove them extensively, and the hemorrhage could only be controlled by placing a ligature on the main artery. Neither would he tie the external carotid before removing an ordinary parotid tumor. The two growths to which he had referred in his paper were unusually large; on one side the artery was tied first, but on the other the tumor was dissected out rapidly, the vessel being ligated as soon as it was reached. He had ligated an atheromatous artery in a case of amputation of the thigh, and had no hemorrhage. In the case described he would not have tied the atheromatous internal carotid, even if he had believed that there was no danger in the procedure, because he could accomplish the object desired by placing the ligatures on sound arteries.

OPERATION FOR THE CURE OF PROLAPSUS ANI.

DR. LANGE presented a patient upon whom he had performed the operation which he had described at the previous meeting. He desired to modify the statement which he had made with regard to the condition of the patient, as the latter had become worse during the past few weeks. There was no return of the prolapse, but the patient did not have perfect retention, so that fecal matter was discharged while he was walking. The action of the sphincter and the levator ani was pretty good, but it was not perfect. The present case had been a very obstinate one. Future developments will show if the operation possesses any lasting value. The speaker called attention to the fact that the anal ridge was situated more deeply (nearer to the middle of the body) than normally, and that the posterior anal commissure was carried forward—a change probably due to contraction of the levator ani.

In reply to a question from Dr. Sands, as to whether the cure might not be made more complete by contracting still further the anal aperture, the speaker said that the prolapse was already cured, but that the patient had not acquired sufficient control over his bowels. The orifice might be narrowed, as suggested, since the muscular action alone was not enough to cause perfect closure. He feared that an attempt to contract the aperture by excising the mucous membrane alone would not produce lasting results; this had been tried several times before. He intended to use cold water injections and electricity with a view to stimulating the parts to contract.

SARCOMA OF THE PHARYNX, REMOVED BY PARTIAL EXSECTION AND DISLOCATION OF THE INFERIOR MAXILLA.

DR. LANGE showed a patient from whom he had removed a tumor that occupied the left half of the pharynx, extending upward behind the soft palate, and down the throat so far as to dislocate the larynx. Following Mikulicz, he performed preliminary tracheotomy, and then made an incision along the inner border of the sterno-mastoid muscle, and a horizontal incision along the border of the zygomatic arch, so as to expose the angle of the jaw, which was removed subperiosteally, so as to give access to the tumor. The operation was a long and tedious one. The patient had intense iodoform-poisoning, being at first greatly excited, and then speechless for fourteen days. He was fed by a stomach-tube, which he swallowed one day, through the carelessness of a nurse. After being retained for five weeks, the tube (which was eighteen and a half inches long) was passed per rectum. The patient finally recovered, with paralysis of the lip on the side of the wound, but there was no displacement of the teeth, his power of mastication being as good as ever. The operation was performed on the 28th of September.

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In reply to a question from the President, Dr. Lange said that all of that portion of the angle of the jaw which corresponded to the insertion of the masseter muscle had been removed, and that the jaw had then been dislocated, so as to afford a view of the interior of the pharynx; but, in spite of this, he did not obtain a clear idea of the connections of the tumor, and was obliged to scrape it out piecemeal, so that the operation was not as thorough as he could have desired. The growth was about the size of a goose-egg, so that it interfered with deglutition, and was beginning to cause dyspnœa. It had no bony attachments, and was encapsulated, but broke down readily, so that it was impossible to remove it entire; it was also quite vascular. Microscopically it presented the appearances of a mixed round- and spindle-celled sarcoma.

DR. WEIR asked whether it would not have been possible to reach the tumor by Kocher's method—that is, through the nose.

DR. LANGE replied that there would not have been sufficient room.

DR. SANDS said that Busch had described a variety of fibro-sarcoma of the pharynx that was neither very vascular, nor was it firmly attached. He had had a similar case several years before; supposing that he would have a profuse hemorrhage on removing it, he introduced a Trendelenburg's tube, but it was not needed, as there was but little bleeding. As soon as the capsule of the tumor was divided, it could be shelled out easily; it seemed to spring from the connective tissue.

DR. LANGE said that the tumor which he had described extended high up behind the soft palate, and was very vascular.

RENAL CALCULUS REMOVED POST-MORTEM FROM A PYONEPHROTIC KIDNEY.

DR. LANGE said that he had exhibited at the previous meeting a renal calculus removed by nephrotomy from a woman, who was reported as doing well five days after the operation. Her condition changed suddenly for the worse. An examination of the other kidney showed that it was enlarged. Fourteen days after the operation the patient had a chill, followed by septic symptoms. The kidney was punctured with a needle, and pus was found, while a calculus could be felt. After refusing for five days to allow an operation to be performed, she finally consented. The pelvis of the kidney was found to be dilated and filled with extremely offensive pus, and the specimen shown was also found in it. The patient had complete suppression before her death, which occurred six days later from septicæmia.

Within the pelvis of the kidney which was first incised (the specimen was shown) were found numerous fragments of calculi, some of which resembled the processes in the original stone. The septic poison was due to the numerous abscesses in the opposite kidney. The patient would have been seriously ill, even if she had survived the second operation, although if it had been done at the proper time the result would have been different.

DR. LANGE showed some

CURVED NEEDLES FOR SEWING THE ABDOMINAL WOUND

which he had devised. They were of a fusiform shape near the point, the eye being situated behind the largest part of the needle. There was a small indentation in the beak, so that if caught by the needle-holder the point would not be spoiled.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

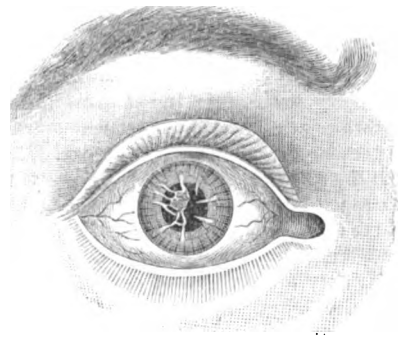
Stated Meeting, February 23, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. CHARLES S. TURNBULL exhibited a patient presenting a

PERSISTENT PUPILLARY MEMBRANE.

The patient has in his right eye what is known as a "persistent pupillary membrane." This is a remnant of fœtal life, but its exact structure has not been ascertained. Some consider it to be made up of atrophied bloodvessels, which have served their purpose. Other authorities hold that it consists of the remains of connective tissue through which bloodvessels pass. In this man's right eye there is a network of hair-like fibres occupying the outer half of the pupil (see Figure).



These fibres originate from the anterior surface of the iris, and interfere in no way with the constrictor muscle of the pupil. This form of congenital anomaly was first observed about 1735, and on an average about one case has been reported every five years since that time.

DR. E. JACKSON said that this case is notable for the clearness with which it shows the relation between the membrane and the iris. In all the cases he had seen, heretofore, as in this, the pupillary membrane has seemed to arise from the anterior surface of the iris; but in no other instance has the connection been so obvious, the membrane here appearing to be simply an extension of the anterior layer of the iris; and similar to it in structure.

DR. TURNBULL said that the point referred to by Dr. Jackson is well illustrated in this case, and it settles the disputed question as regards the origin of these fibres. It is distinctly seen that the sphincter muscle is in no way involved. The membrane has no connection with the muscle nor with the inner pupillary margin.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, March 1, 1887.

THE PRESIDENT, CHARLES L. DANA, M.D., IN THE CHAIR.

DR. H. M. BIGGS presented the

CORD AND NERVES IN A CASE OF ALCOHOL PARALYSIS—MULTIPLE NEURITIS.

Bertha S., aged thirty-five, married, admitted to the hospital, September 20, 1886. History imperfect. Noth-

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ing of importance in the history up to the beginning of her present illness, about five weeks before admission, when she began to have sharp shooting pains in both legs, but more severe in the right. She began to lose power in her limbs, and one week later was unable to walk because her limbs were "too weak." The loss of power seemed to begin in her feet. She complained of pain in her back and weakness when she tried to stand. Later she began to have pain and lose power in her arms. She says she has been a moderate drinker, and denies syphilis.

On admission the patient was almost completely paralyzed in her lower extremities; could barely raise her limbs from the bed. The muscles of the upper extremities, especially the extensors, were also somewhat affected. There were some spots of hyperæsthesia and partial anæsthesia irregularly distributed over the lower extremities, and also considerable numbness. Sensation in the upper extremities seemed to be normal. The reflexes were lost. There was marked atrophy in the legs and thighs on both sides, particularly of the extensors of the foot, and a moderate amount in the arms. The extensors here were also most affected. She complained of very severe pain in the arms and legs which kept her awake at night, and there was marked tenderness on pressure. Temperature at 9 A. M., 100°; at 5 P. M., 101.2°. Pulse, 9 A. M., 104; at 5 P. M., 112. Urine, 1.018; albumen one-eighth in bulk, no casts.

Two days after admission the patient was found to have a moderate amount of fluid in the right pleural cavity. Twenty-four ounces of serum were withdrawn. She gradually failed, lost strength, emaciated. The pleurisy developed into an empyema, for which a free opening was made in the chest. Before death, which occurred in February, 1887, she had lost all power over both lower extremities, and the arms were partially paralyzed. Atrophy was very marked in both lower extremities and forearms. Pain was constant and paroxysmal, and very severe. Tenderness on pressure and pain on movement of muscles marked. Contraction of the muscles had gradually developed until the thighs were sharply flexed on the trunk, and the legs on the thighs; attempts to straighten the limbs caused the most severe pains. The bladder and rectum, the muscles of phonation, deglutition, and respiration, and the nerves of special sense were entirely unaffected. The reactions of degeneration were present. The patient died of exhaustion resulting from the empyema.

Autopsy.—Patient greatly emaciated. Legs and thighs markedly flexed. Muscles of the leg of a yellow color, and apparently converted almost entirely into fat; muscles of thigh much less affected. Spinal cord nerve roots and trunks normal in appearance.

Microscopical Appearances.—Spinal cord apparently normal, with the exception of slight sclerosis in the columns of Goll in cervical region. Nerve roots normal. In one of the sacral nerves before its exit from the spinal canal was found a marked increase in the endoneurium with diminution in the number of the nerve fibres, and an irregularity and indistinctness in these appearances. The right sciatic nerve showed the same changes more marked. In the posterior tibial the process was even more advanced, and in this only an occasional nerve fibre could be detected. Microscopically the gastrocnemius was composed almost entirely of adipose tissue; only here and there atrophied muscle fibres were found. The small nerve trunks in the muscle showed advanced degenerative neuritis, with comparatively little new growth of connective tissue in the nerves.

THE PRESIDENT thought that in this case it had been fully demonstrated that the alcohol paralysis was due to a neuritis and not to a myelitis.

DR. M. A. STARR had seen the specimens, and said there was no question with regard to the existence of neuritis in this case, and the normal condition of the anterior cells of the spinal cord. There was slight sclerosis in the columns of Goll which he was unable to explain. The same condition had been observed in a case of Hamilton recorded by Grainger Stewart. He referred to a well-prepared specimen by Dr. Van Gieson in a case of Dr. Ball's, not yet published; also to the manner of preparing specimens.

DR. BIGGS said that, contrary to the ordinary condition found, the process seemed to be more a degeneration of nerve fibre than an interstitial neuritis, especially in the smaller nerves.

DR. NOYES spoke of the frequent occurrence of amblyopia with alcoholism, and said that it was due to a partial neuritis of the optic nerve, referred, as had been shown, to the centre field, and not to the field at large. He suggested that in cases like the one reported by Dr. Biggs, the neurologist should make careful examination of the optic nerves. In reply to Dr. Starr, whether scotoma is due as frequently to tobacco as alcohol, he said it might be due to either, but the patients frequently combine the two habits.

THE PRESIDENT said that the name alcohol paralysis was rather begging the question; this patient, it seemed, had been only a moderate drinker. The same fact had been noticed in other cases.

DR. STEVENS then made some remarks on

IRRITATIONS ARISING FROM THE VISUAL APPARATUS CONSIDERED AS ELEMENTS IN THE GENESIS OF NEUROSES.

Two classes of influences were recognized as causes of functional nervous disorders; the remote and the immediate. The remote causes may be sufficient to perpetuate a neurosis when once a nervous irritation has been instituted. While immediate causes rarely induce long-continued disorders, preëxisting influence may serve to continue it indefinitely. It is of little practical importance that some exciting circumstance has given rise to a nervous trouble. The event has passed and cannot be recalled. If there is an underlying cause, it is of much more importance.

Persons in whom underlying causes of neurosis exist are said to possess a neuropathic predisposition, and those subject to it are liable, from trifling immediate causes, to suffer from various neuroses. In a considerable proportion of cases the neuropathic tendency is hereditary, but the result is not always manifested in the same form in different generations.

A third class of cases which should be recognized, may be designated as *modifying tendencies*, among which may be mentioned vitiated atmosphere, the period of life, and the performance of certain physiological functions.

Often as a result of the predisposing influence, when one form of complaint is supposed to be cured,

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the subject of it is simply suffering from some other form.

Must the predisposing cause of neurosis be general, pervading the whole organism, or must it of necessity be located in the great nerve centres, or may it be entirely local and outside those great centres? Undoubtedly it may be local, and confined to any portion of the nervous system.

Inasmuch as the tendency is often hereditary, may not the evil consist of some peculiarity of anatomical structure or of physiological adaptations which are inconsistent with the most regular and easy performance of the function of a part or parts; and may not certain classes of mechanical peculiarities be unusually liable to become factors of physiological disturbance?

If we answer in the affirmative we assume a hypothesis which must be maintained by long observations conducted in a spirit of judicial independence and free from the bias which might result from occasional and exceptional experiences. The conclusions announced are based upon observations in more than five thousand cases in private practice and of a considerable number in public institutions, all of which have been made with as much precision as the exacting demands of an active professional life would permit. The central truth as arrived at by these observations may be stated, as it has already been done, in a memoir to the Royal Academy of Medicine, Belgium, in 1883, as follows:

Difficulties attending the functions of accommodating and of adjusting the eyes in the act of vision, or irritations arising from the nerves involved in these processes, are among the most prolific sources of nervous disturbances, and more frequently than other conditions constitute a neuropathic tendency.

In the proposition all causes of nervous irritation are recognized. It is held that the influences indicated are preëminent, but not exclusively permanent causes. Let it be remembered that it has been universally conceded that the nature of the neuropathic tendency is unknown. If one preëminently important element is demonstrated, it is not to be rejected because it may not include the whole.

He proposed only to illustrate the result of his experience by exhibiting some photographs of cases of notable neuroses which showed very remarkable changes of physiognomy, such as habitually occurred when certain hurtful tensions of the ocular muscles were relieved. If he had designed to present only the most remarkable cases of the class to which these belonged he would have chosen only a few of these. The design was, however, only to show by these contrasting photographs the very notable improvement which, in obstinate, and even, by ordinary means, hopeless cases of the most important neuroses, might be expected from relief from certain hurtful tensions of the eye muscles.

The portraits were in pairs, the first having been taken at the commencement of treatment, the second at a later period, the interval being, on an average, about one month. The first series represented cases in his private practice; the second series, cases which were under his care for a short time at the Willard Asylum for the Insane, last summer. The first series had been made by various photographers, the second by Dr. P. M. Wise, Superintendent of the Willard Asylum. Thirteen pairs of photographs were exhibited, nine of the first, and four of the second series. In all these very striking contrasts existed between the first and second portraits.

In No. 1, a weary and listless young girl, a sufferer from headache, and who had never been able to attend school, is seen to be transformed in twelve days into a vivacious and thoroughly awake child, following relaxation of each of the inner eye muscles. The change in health was marvellous. In No. 2, an epileptic girl whose vacant gaze and half-open mouth indicated a profound degree of dementia, within a single month put on an appearance of robust health and of lively intelligence. In another case a boy, choreic from infancy, and imbecile, whose constant movements were too rapid even for the modern photographer, showed in the second photograph from which the distortions of the face and wrinkles in the skin had disappeared, a clever mental state.

He related in brief some of the results of a short season among the most hopeless cases of the Willard Asylum for the Insane. Two of these hopeless cases, who had, during the month preceding treatment directed to the eye muscles, been subjected to about one hundred and seventy convulsions, suffered only about forty convulsions in the month succeeding that treatment, notwithstanding the withdrawal of all bromides. Fifty per cent. of epileptics so treated had remained well for a length of time varying from many years to only a single year, but sufficiently long to indicate that a great change had been wrought. Thirty-two per cent. had received very marked relief but short of absolute cessation of the complaint. They were all better without drugs than they had formerly been with. In seventeen per cent. no good results had been obtained.

He thought that with a better understanding on his own part of the extremely complicated condition of the ocular muscles often found in epilepsy this record could be improved.

The method of procedure in examining for muscular defects was given. It differed radically from that proposed by Gräfe and generally adopted, and from other methods which had been suggested. His method of performing tenotomy was also described.

In conclusion, Dr. Stevens said he thought it was not unreasonable to look for the future advance in medical practice along the great lines; the one related to microorganisms, the other to irregular phenomena resulting from well-defined causes of irritation, which causes must be sought for principally in the direction of difficulties in the performance of necessary functions. With the removal of such difficulties we might look with confident expectation to the cessation of the peculiar irregularity which constituted the special form of nervous disease.

DR. E. C. SEGUIN said with regard to the etiology of neuroses and serious mental disorders that he thought we ought to look a great deal deeper than the exciting and superficial causes which occurred in many cases of that kind. In epilepsy and chorea, for instance, he thought we had to look for the efficient cause not in disturbed external apparatus, but to hereditary predispositions and faulty tendencies. That faulty external apparatus would cause more attacks, or possibly aggravate the mental disorder, he thought no one would

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deny, consequently the optic apparatus, the genital apparatus, etc., should be put in perfect order. As to the great improvement after tenotomy in epilepsy, the records of surgery and medicine are filled with cases in which trauma of various kinds have interfered with epileptic manifestations for months or even years. It seemed to him the report of a case within six months after tenotomy was rather premature. He referred to one of his cases of epilepsy recently submitted to division of the ocular muscles, the bromides at the same time being withdrawn, and three days later she commenced to have from six to twelve convulsions in the twenty-four hours—more than she had ever had before the operation. He had had patients go three years without an epileptic attack, and then have a relapse.

DR. H. D. NOYES thought the precise ocular conditions in the cases reported should have been recorded; perhaps they were in that part of the paper not read. He had with him the exact records of a number of cases of ocular trouble with the result of treatment. It had not fallen within his experience to meet with the class of cases referred to by Dr. Stevens. He dwelt upon the importance of making a thorough ocular examination, including that of the muscles of the eye, in every case. He had come to realize more and more the importance of insufficiency of the external recti. He had obtained benefit in many cases from prisms. He spoke of the method of examination and of performing tenotomy. The paper deserved the most careful consideration.

DR. D. B. ST. JOHN ROOSA said that that part of the paper which especially concerned the ophthalmologist was as old as ophthalmology itself, and it did not call for discussion to-night. The real point in the paper was, he thought, that the correction of errors of refraction, improper relations between the ciliary and internal recti muscles, and other deviations of the ocular muscles was capable of curing constutional disease. He took it that epilepsy is a constitutional disease and not merely a functional disturbance. The same is true of chorea. The question was, Did these operations cure epilepsy and chorea? But it had been shown that people with chorea got well without ever having error of refraction corrected. It had also been shown that the vast majority of people who are not myopes are hypermetropes, yet suffer no inconvenience from it. In this, the author's second paper, another step had been taken, namely, that these constitutional diseases, epilepsy and chorea, were due not solely to errors of refraction, but to want of coördination between the recti and ciliary muscles. Then the prism test came upon the field, and we had to exercise the ocular muscles by prisms. Then in the order of advance came the doctrines taught in the paper of to-night. Granting the claims of the paper, that the patients had for a time after correction of an ocular difficulty been greatly relieved, possibly cured, yet that was a long way from assuming that the ocular disturbance, whatever it was, was the cause of the epilepsy. Many great men having strabismus had not become choreic, epileptic or insane.

DR. A. L. RANNEY thought that following the exhibition of the photographs little need be said in confirmation of the views advanced by Dr. Stevens. The photographs were so startling that they would be accepted in any court of justice by an unprejudiced jury as proof that unmistakable benefits had been derived from the treatment. He had personally seen and examined several of the cases, and he considered the published histories as decidedly under-estimated. Dr. Ranney had performed the operation for the relief of ocular insufficiency nearly two hundred times, and had carefully examined the condition of refraction and accommodation as well as that of the ocular muscles in several hundred subjects afflicted with various forms of nervous disease. He did not pretend to pose as an oculist, but as a neurologist. Originally he was a sceptic, but his scepticism became no longer tenable when he saw a choreic and epileptic imbecile in Dr. Stevens's office who was perfectly restored in a short time to health and mental sanity by the method he had described. He thought the paper would tend to establish a new era in neurology. Regarding the operation, in no case had he had bad effects from it, but the treatment required careful regard to detail.

Respecting the view that the eye is an important factor in creating and prolonging the so-called "neuropathic predisposition," the following facts were pertinent: 1. No one has yet shown in what this predisposition lies; hence, if Dr. Stevens has shown that eye defect is an important element in these conditions a great advance has been made; 2. There is no recognized pathology in the functional nervous diseases; 3. Heredity is very common in these affections; 4. Dr. Ranney's records in common with those of Dr. Stevens's go to show that eye-defect is found in a very large proportion of such subjects; 5. Many of the eye-defects found can be shown to be congenital—being inherited like features; 6. The manifestations of the neuropathic predisposition vary with each case, and are called forth often by trivial circumstances which are too frequently regarded as of great clinical interest.

In the treatment of the severer forms of functional nervous disease, for example, in chronic epilepsy, one radical cure without the aid of drugs offsets a thousand failures as a proof of the scientific value of a discovery. Dr. Stevens had seven cases free from epileptic seizures for more than five years after tenotomy of the eye-muscles, and without the aid of drugs. This could not be explained by chance. Then the records of the Willard Asylum were hard to contradict.

During the past year and a half he had seen sixteen epileptics in private practice; in only one was no defect in the eye muscles found. He had an opportunity to operate on the eyes in eight of the cases; three of these were cured; two had had no fits for over one year. In the five cases still under observation the attacks had been lessened in all, drugs having been withdrawn. One had been reported by Dr. Stevens. In headache and neuralgia he had had some very remarkable results from tenotomy of the eye muscles; also satisfactory results in hysteria and hystero-epilepsy.

DR. HERMAN KNAPP said his practice had not brought him much in contact with people who had neurotic conditions, and most of those whom he had seen had passed into other hands. He was very much surprised to learn that there was so high a percentage of ocular difficulties in the patients Dr. Stevens had examined in the asylum. He thought nervous people generally showed not only one complaint. Many people, especially young ladies, who suffer from headache, etc., cease to complain after correction of a deviation of the

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eye muscles, etc. He had listened with the greatest attention to Dr. Stevens, and he felt quite sure that his work was not only legitimate, but that it was highly promising. He was only afraid we would not be spared disappointments in that line of treatment.

DR. GRUENING said his experience had been very much like that of Dr. Knapp. He always examined for muscular defect, and said that when one placed a prism before the eye it disturbed binocular vision. For the correction of this apparent muscular defect an operation was performed, but the muscle was sewed to its original place, or the lateral attachment was not divided; and this was only the simulation of an operation. He had benefited many patients by cylinders.

DR. STEVENS, in closing the discussion, said there was no suggestion in the paper regarding cures. He did not believe in cures; take away the cause of the trouble and they get well. If the patients could not be said to be cured, it was still a very fortunate thing that they had got rid of their chorea, epilepsy, etc.

CORRESPONDENCE.

AGARIC IN THE SWEATING OF PHTHISIS.

To the Editor of THE MEDICAL NEWS,

SIR: I notice that some correspondence has lately taken place in THE MEDICAL NEWS with reference to "Agaric in the Sweating of Phthisis." The introduction of the drug has been attributed to Siefert, and others. Will you allow me to state that I believe that I was the first to reintroduce this drug into practice, and my note on this subject was published in the *Medical Times and Gazette* in 1881. In a short paper, I there stated that I had used agaricus in a number of cases with complete success, and I claimed for it that, being harmless, it was to be preferred to atropine and other like drugs.

My note attracted the attention of Dr. Young, of Glasgow, who then tried agaric in Dr. Gairdner's wards in the Glasgow Infirmary, and confirmed the opinion I had formed of it. The dispenser at the infirmary then extracted what Dr. Young called an alkaloid, viz., agaricin, but which is really agaricic acid, and Dr. Young administered this successfully. Murrell, of London, next spoke of it. Continental physicians, Siefert, Probsting, Pribriam, and others, reported favorably of it.

Agaricus had formerly been extensively used at the beginning of this century, but had, undeservedly, fallen into disuse. It was my note in the *Medical Times* of 1881, "On Agaricus in the Treatment of Night-sweating," which again attracted attention to it, and rescued a deservedly useful drug from oblivion. Others have only confirmed what I originally wrote of it.

I may say that I have used it extensively since 1881 with the best results. Besides checking night-sweating, agaricus has a decided influence in retarding the tendency to hæmoptysis. My object is to show that it was not due to Seifert, or other physicians, that the drug now retains a place in medical practice, but to myself.

I am, sir, yours faithfully,

R. NORRIS WOLFENDEN, M.D. Cantab.,
Senior Physician to Throat Hospital,
Golden Square, London.

DEATH-RATE OF THE BOSTON LYING-IN HOSPITAL.

To the Editor of THE MEDICAL NEWS,

SIR: In the article on "The Death-rate of Lying-in Hospitals," by Dr. B. C. Hirst, which appeared in THE MEDICAL NEWS of March 5, 1887, appears the following sentence:

"The sudden decrease in the mortality of the Boston Lying-in Hospital, in 1884, was the result of a letter calling the attention of the managers to the really murderous death-rate of former years in that institution."

I do not know the authority Dr. Hirst has for making such a statement. No such letter has ever been received by the managers or any member of the medical staff. It seems to me a matter of justice that you should give this denial as prominent a place in your journal as the original statement.

Yours very truly,

WILLIAM L. RICHARDSON,
Visiting Physician of the Boston Lying-in Hospital.

BOSTON, March 9, 1887.

SIR: The assertion to which Dr. Richardson refers was made on what I supposed good authority, before I had read his paper on "The Use of Antiseptics in Obstetric Practice." I am now convinced that it is entirely incorrect, and while much regretting having made such a mis-statement, I am glad to have an opportunity to acknowledge and correct it.

Yours, etc.,

B. C. HIRST.

PHILADELPHIA, March 14, 1887.

ANTIPYRIN IN HEMICRANIA.

To the Editor of THE MEDICAL NEWS,

SIR: An abstract of an article on the use of antipyrin in hemicrania, which appeared in your journal of March 5, 1887, leads me to relate my experience with this drug in neuralgia, especially of the cranial nerves.

The most striking case is that of a lady, who, for the last ten years, at least, has suffered from neuralgia of all the branches of the facial nerve and certain ones of the cervical plexus. She has tried various remedies and methods of treatment, but from none has she obtained so much relief as from antipyrin, which in two out of three trials completely relieved the paroxysm; in the third trial it diminished the severity, but did not completely arrest the attack.

I have tried this drug in three other cases of neuralgia, two of the facial nerve and one of the supraorbital. In all of these cases it relieved the paroxysm, but did not prevent a recurrence. It has been my habit to administer it in fifteen grain doses repeated in one hour, and if necessary a third dose is given at the same interval.

Yours truly,

C. B. LYMAN, M.D.

DENVER, COLORADO, March 10, 1887.

NEWS ITEMS.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY has memorialized the Legislature in opposition to the passage of Section 10 of the proposed Pharmacy Law, now pending. This Section so far repeals the Registration Act

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as to permit druggists to engage in the practice of medicine, provided that they conduct only an office practice. The Society urges that this proposition is unworthy of approval and support, for many reasons, but above all, because of the danger to which it exposes the lives of individuals and the health of the community. The Druggists' Association of Philadelphia has also taken similar action.

FRENCH SURGICAL CONGRESS.—The third meeting of the French Surgical Congress will take place in Paris in April, 1888, at a date which will be announced shortly, under the presidency of Professor Verneuil. The following questions are arranged for debate at the Congress: 1. On the Treatment of Gunshot Wounds of the Visceral Cavities; 2. On the Value of the Radical Treatment of Hernia as a Permanent Cure; 3. Chronic Suppuration of the Pleura and its Operative Treatment; 4. Recurrence of Tumors after Operation (Causes and Prevention). The object of the French Surgical Congress is to establish scientific relations amongst surgeons and practitioners of France and foreign countries. All qualified men become members of the Congress on duly entering their names and on payment of the subscription of 20 francs.

THE FUNERALS OF THOSE DYING FROM CONTAGIOUS DISEASES.—A clergyman who conducted the funeral service of children who died from diphtheria, contrary to the regulations of the Board of Health of Des Moines, Iowa, has been arrested and quarantined. He appealed to the State Board of Health, and the local board's action was confirmed.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin.* The temporary charge of the University Clinic for Women in Artillerie-strasse, vacant by Professor Schröder's death, has been given to Dr. Hofmeier, the chief assistant physician.

Leipsic. After having met with two refusals, the invitation of the University to fill the Chair of Midwifery has been accepted by Professor Zweifel, of Erlangen.—*Lancet*, February 26, 1887.

CHEAP VENTILATION.—According to Professor V. C. Vaughn, for every room heated by a stove, there should be two flues, one for the smoke and other gaseous products of combustion, the other for ventilation. The latter should extend to the floor, just above which there should be a register. The smoke flue should be of iron pipe placed in a large flue, and the space all around the pipe will serve as a ventilating flue. With this arrangement, the air in the ventilating flue will be heated whenever there is a fire in the stove, and the removal of the foul air will be so far insured. It should be seen to in building the chimney that the inside of the ventilating flue is finished quite smoothly, and not clogged with mortar or pieces of brick.

For the supply of fresh air, a simple and efficient plan is to bring a pipe of about six inches in diameter through or under the floor, to the stove, where it terminates in a sheet-iron jacket placed around the stove, leaving a space of one or two inches, and having escapes only at the top. The heat of the stove will produce a current through the pipe of fresh, warmed air.—*Sanitary Era*, March 1, 1887.

INSECTS CARRIERS OF DISEASE.—The views of Dr. Grassi, that insects, especially flies, may be considered as veritable authors of epidemics, and agents in infectious maladies, are strengthened by the investigations of Dr. R. L. Maddox, as explained in a paper read by him to the Royal Microscopical Society.

He believes that the comma-bacillus from cultures can pass, in a living state, through the digestive tube of some insects, and, from this cause, insects feeding upon bacilli are likely to become the media of distributing diseases. Instances have been heretofore published of the discovery of living infinitesimal worms carried from one locality to another in the proboscis of the fly, caught after feeding upon substances containing such worms, and examined with the microscope. Such records open up an immense field of possibilities to the imagination of speculative individuals.—*Popular Science News*, March, 1887.

TOO FREQUENT LAPAROTOMIES.—At the annual meeting of the Governors of the Liverpool Hospital for Women, the case of Dr. Imlach was made the subject of lively discussion, he having been accused of too frequent indulgence in spaying, and of varying from the consultation custom of the hospital. The controversy seems to have been based mainly on personal grounds, there being great jealousy and antagonism among the staff. On the question of reëlecting the staff arising, first, Dr. Briggs, a new member, was elected unanimously; secondly, Dr. Burton, who had been on the staff since the formation of the hospital, and who was pointedly accused by Mr. S. B. Bacon of being "the originator" of the quarrels, was elected, by thirteen votes to nine; thirdly, when the case of Dr. Imlach's reëlection came up, it was negatived by seventeen to sixteen votes.—*New York Med. Record*, March 5, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 8 TO MARCH 14, 1887.

ALDEN, C. H., *Major and Surgeon.*—Ordered for duty at U. S. Military Academy, West Point, N. Y., August 28, 1887, relieving Lieut.-Col. Andrew K. Smith, surgeon, who will then report by letter to the Surgeon-General.—*S. O. 52, A. G. O.*, March 5, 1887.

CARTER, WM. F., *Captain and Assistant Surgeon.*—Leave of absence extended four months on surgeon's certificate of disability.—*S. O. 57, A. G. O.*, March 11, 1887.

MCCREERY, GEO., *Captain and Assistant Surgeon.*—Leave of absence extended one month. -*S. O. 52, A. G. O.*, March 5, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 12, 1887.

BRADLEY, GEORGE P., *First Surgeon.*—Detached from Naval Hospital, Philadelphia, Pa., and granted six months leave.

STEELE, JOHN W., *Second Passed Assistant Surgeon.*—Ordered to Naval Hospital, Philadelphia, Pa., without delay.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 12, 1887.

BANKS, C. E., *Passed Assistant Surgeon.*—To proceed to Chicago, Ill., and assume temporary charge of the Service, March 10, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MARCH 26, 1887. No. 13.

ORIGINAL ARTICLES.

CONTRIBUTIONS TO THE DIAGNOSIS OF YELLOW FEVER.[1]

BY AUGUSTIN M. FERNANDEZ, M.D.,

CORRESPONDING MEMBER OF THE MEDICO-CHIRURGICAL ACADEMY OF MADRID, SPAIN.

IT seems at first sight incredible that after three hundred years of study of yellow fever, a dozen physicians can not be found in any city holding the same opinion in regard to its true nature and treatment. Even in places where this disease is endemic, and has been known for over a hundred years in uninterrupted succession, there also exists a variety of opinion among practitioners. Probably there is no medical society that has paid more attention to the subject than the Academy of Medical, Physical, and Natural Sciences of Havana, Cuba,—an unpretentious scientific body, full of good faith and disinterested love of science—yet, I believe it would be difficult to find among its members half a dozen sustaining exactly the same opinion in regard to all the phases of yellow fever.

The maxim of Dutroulau—that in this disease it is necessary to see a great deal in order to see correctly, ought to be supplemented by adding that it is necessary at the same time to take very minute clinical notes in order to see intelligently, for all epidemics do not bear the same characteristics, and even all the cases of the same epidemic do not present the same symptoms; there are epidemics so malignant that for a person to fall sick is equivalent to die, in spite of all kinds of treatment, while there are others so benign that even expert diagnosticians confound many cases with other diseases possessing very analogous symptoms. In fact, a typical case of yellow fever, as it is described in the text-books, is very rare; hence the difficulty of the diagnosis.

It suffices to see but a few yellow fever patients to become convinced that this formidable malady constantly presents two distinct stages. The first is a short one, lasting no more than three days, generally called "the stage of reaction;" the second is that of defervescence and decomposition of the blood, known as "the stage of calm," and lasting from a few hours to two weeks, according to the form and character of the epidemic. When the case terminates happily during the first stage, the second is marked only by the beginning of its evolution in convalescence. The more rapidly the two stages succeed one another the more dangerous the case, and *vice versâ*.

In places where yellow fever is endemic, the character of each summer's appearance depends on the telluric, climatological, and hygienic conditions of those places, especially the velocity and direction of the prevailing winds at that time. It is worthy of attention in this regard, the explanation given by Hippocrates of "medical constellations," or atmospheric conflicts, as the pathogeny of epidemic diseases,—a *quid occultum* developed in the atmosphere of certain foci of infection as the sum total of a series of coefficients.

The epidemic forms of uncomplicated yellow fever may with advantage be divided into *ephemeral*, *adynamic*, and *ataxic*. In the ephemeral form the patients suffer the general prodromata of the disease—fever, headache, pain in the back and lower limbs, nausea, epigastric discomfort and tenderness on pressure, etc.—but the fever does not exceed 103°, and lasts only two or three days; vomiting is rare, and if it occurs, it is of a bilious character; the mind is perfectly clear, with no other disturbance of the nervous system than the anxious expression of the face. In this form we have the nearest approach to bilious remittent fever, and in places where yellow fever is endemic it constitutes the so-called "acclimatization fever." The patients usually get well in about seven days. In the adynamic form predominate all the symptoms of decomposition of the blood. It always breaks in suddenly with a chill from the hours of six o'clock in the evening to six in the morning, followed by high fever (over 103°), a sense of weight in the head, besides the cephalalgia; the pain in the lumbar region extends around the waist as if having a tied belt, gurgling in the right iliac fossa distinctly perceptible; there is a mahogany coloration of the face and chest; tongue slightly coated, red at the tip and edges; bowels constipated; lessened quantity of urine, highly colored and albuminous; the sclerotic has an icteric tint under the inferior eyelid after the first day of the attack; without much retching altered blood or "black vomit" is ejected, although this symptom has not, in this form of the disease, the great pathognomonic importance generally attributed to it. The febrile signs increase toward evening and lessen toward morning, but do not distinctly remit until the third day. This form is always grave, and when death occurs in the second stage it generally takes place from the seventh to the fourteenth day. In the ataxic form predominates the nervous depression. It is always very grave and rapid in its course, the second stage almost immediately following the first, giving rise to those fulminant cases lasting only forty eight hours, so common in Vera Cruz, and known to the French physicians as "*coup de barré*," or stroke of the bar, on account of the suddenness and intensity of the pain across the loins. In this

[1] Read before the Orleans Parish Medical Society, New Orleans.

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form the "black vomit" is always present, and sometimes also hemorrhage from other situations; there are disquietude, delirium, hiccough, photophobia, and once in a while amaurosis, ischuria, and finally collapse or convulsions. Death generally takes place on the fourth or fifth day. It is of good omen if the patient outlive the seventh day.

Yellow fever, however, does not at every appearance and in all localities present exactly the same group of symptoms; for not only the constitution and the peculiar variations in the state of the individual exert a modifying influence, but also the meteorological conditions and the diseases prevailing at the time. The recognition of this dreadful disease, nevertheless, speaking in general terms, is easy. Whenever, during the summer, we are called to see a patient suddenly taken sick with one paroxysm of cold, which occurred when the sun had disappeared from the horizon, followed by rapidly rising fever (102°, 103°, 104°), and accompanied by headache, pain in the back and lower limbs; the face flushed with an anxious expression, and the eyes brilliantly injected and watery; hurried breathing; the stomach very irritable, with great epigastric discomfort and tenderness on pressure, nausea, and anorexia; the tongue moist, slightly coated, sometimes red at the tip and edges, yet otherwise natural; bowels constipated, gurgling in the right iliac fossa; lessened quantity of urine, darker in color and albuminous; general muscular debility; pulse rapid, strong, tense, sometimes dicrotic, with from 90 to 120 pulsations to the minute; skin hot, dry and harsh, and all this without a previous history of yellow fever; then we may unhesitatingly pronounce the disease yellow fever in its incipiency.

Peculiarities of the General Symptoms.

APPEARANCE OF THE FACE AND EYES.—Besides the hyperæmia of the face and conjunctiva, and the anxious expression of the countenance, there is always a mahogany coloration of the skin on the forehead, temples, *alæ nasi*, cheeks, and sometimes also at the sides of the neck and front part of the chest—this is called by some authors "the mask" of yellow fever. In an elaborate monograph of Dr. Juan Santos Fernandez, of Havana, Cuba, on the loss of sight in yellow fever, translated by me from the Spanish original,[1] this distinguished oculist calls attention to the hyperæmia of the eyes and the dilatation of the pupil, which in some cases is so marked that it gives to the face a vague and indefinite expression, very similar to that assumed by a drunken man. In the second stage the redness and brilliancy of the eyes diminish, and the rosy color of their tegumentary covering gives place to an icteric tint several hours before the discoloration of the skin is noticeable. Some practitioners pretend to find a direct relation between the intensity of the coloration of the conjunctiva and the severity of the attack, and others, more correctly in my opinion, base the differential diagnosis between yellow fever and malarial fevers on the absence of hyperæmia of this mucous membrane in the latter.

[1] Knapp's Archives of Ophthalmology, vol. x. No. 4, Dec. 1881.

PULSE AND TEMPERATURE.—The action of the heart and the state of the blood and arteries, as revealed by the pulse in the first stage of yellow fever, are symptomatic of pulmonary engorgement, and this sudden afflux of blood is due, in my opinion, to the damping out of the portal circulation by the deranged liver. During the first two days the pulse is accelerated, with 90 to 110 pulsations to the minute, full and resisting, but at the commencement of the fourth day it changes completely—if the patient really enters in convalescence, the pulse is soft, rhythmical, and natural; but if this deceptive remission of the febrile symptoms is only the transition of the first to the second stage, the pulse shows a marked tendency to disappear, beating threadlike, so slowly as forty-five times, or even less, a minute in unfavorable cases.

Respecting the temperature in yellow fever, we possess the valuable observations of Dr. Joseph Jones, of New Orleans,[1] stating as the result of many investigations, that the maximum elevation of temperature is attained upon the first, second, and third days of the disease, ranging from 102° to 110°; from the third to the fifth it steadily falls, and sinks to the normal standard or below it, to rise again in some fatal cases in the stage of collapse, though it never attains the high temperature characteristic of the first stage.

HEADACHE.—The cephalalgia of yellow fever is aggravating and astrictive, but, as a general rule, never pulsatile. Its prime characteristic is its seat, which is over the eyes, and seems to affect all the muscles of the ocular apparatus supplied by the third pair of nerves, principally the internal rectus muscle. Any movement of the eyeball, or a little pressure on the closed eyelids causes great discomfort.

PAIN IN THE BACK AND LEGS.—The seat of the pain in the back is the lumbar region, and it seems as though it irradiates from the renal plexus. The pain in the legs is located in the upper part of the calf near the popliteal space, and in severe cases it follows the course of the great sciatic nerve, the patient feeling the pain in the pubes twenty-four hours before death takes place.

THE BLACK VOMIT.—The hemorrhages of yellow fever appear in the second stage, except in the *coup de barré* cases of the ataxic form, in which the two stages are almost blended into one. The blood is viscous, more fluid than natural, and little or not coagulable at all, owing to the loss of fibrin; it exudes from the mucous membrane of the mouth, the nose, the anus, the vagina, and sometimes it comes out also through the ears and eyes.

There are some cases in epidemics of the ephemeral and adynamic forms in which the black vomit is absent, and this so-called "unmistakable pathognomonic symptom" is therefore misleading. Vomiting certainly occurs either spontaneously or provoked by anything taken into the stomach, but the matter ejected has a bitter taste to the patient and all the aspect of bilious and mucous matter

[1] American Practitioner, Sept. 1873, and cited in Nouveau Dictionnaire de Médecine et de Chirurgie.

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combined, but by no means the characteristic coffee-ground appearance of true black vomit.

In the ataxic form the black vomit is always present, not very frequent or very abundant either, generally one or two a day only. It sometimes happens that just at the moment of dying the patient has one paroxysmal vomit of altered black blood and then dies.

THE URINE.—The great peculiarity of this secretion is its constantly acid reaction. Another diagnostic characteristic, as we all know, is the presence of albumen, which, according to Dr. Vidaillet,[1] can be detected twenty-four hours after the onset of the attack by holding a few grammes of the urine in a test-tube, and letting five or six drops of nitric acid run along the interior of the tube, when almost immediately appears a whitish zone dividing the column of urine in two parts, the upper one retaining the same appearance it had before, while the lower assumes a reddish tint. This opaline zone is called by Dr. Vidaillet "the premonitory ring," which he claims is infallibly present in all cases of yellow fever during the second and third days, disappearing entirely during the second stage, when the column of urine divides into two distinct portions on the addition of nitric acid, no matter how carefully poured in. The premonitory ring is soluble in an excess of acid.

In severe cases, when the quantity of albumen has been constantly increasing, epithelial cells and bile are found in the urine, but during the first and second days of the disease, neither tube-casts nor pavimentary epithelium can be detected.

CASE OF PISTOLSHOT WOUND OF THE ABDOMEN, IN WHICH LAPAROTOMY WAS RESORTED TO.[2]

BY JOHN H. PACKARD, M.D.,

SURGEON TO THE PENNSYLVANIA HOSPITAL AND TO ST. JOSEPH'S HOSPITAL, PHILADELPHIA

H. W. L., aged about thirty-three, was admitted into the Pennsylvania Hospital, at about 1 A. M., February 10, 1887. He had shortly before been shot in the abdomen, with a ball from a pistol of the calibre known as 38, in the hands of a man much taller than himself, who was standing directly in front of him.

At the time of his admission he presented symptoms of marked, although not profound, collapse. His temperature was 97.5°; his pulse 120; his breathing apparently normal (not counted). When I saw him, at about 1.45, he had reacted in some degree; there had been some vomiting of food with a slight admixture of blood.

The bullet had entered the abdomen about two inches to the left of the umbilicus, and about half an inch below. Laparotomy was at once decided upon, and in its performance I had the advantage of the counsel and assistance of my colleagues, Dr. Hunt and Dr. Morton. Antiseptic precautions were, of course, strictly adhered to throughout.

The wound was first enlarged sufficiently to ascertain the fact that the cavity of the peritoneum had been penetrated, and that hemorrhage had taken place within it. A careful division of the abdominal wall was now made, from the umbilicus to just above the pubes. A catheter was introduced into the bladder, and a small quantity of clear urine was drawn off. The peritoneal cavity was irrigated with a solution of mercuric bichloride (1: 15,000), and the intestines systematically drawn out and examined. Eleven wounds were found, at various portions of the small intestine, one just at the ileo-colic junction. These wounds were all more or less ragged, and varied considerably in size. Lembert's suture, with fine chromicized catgut, was employed; the needle used was straight, and three-sided.

At one point the bullet had torn its way through the bowel, making two large ragged holes directly opposite one another. Here about one inch of the gut was cut away, with a V-shaped portion of mesentery. The edges of the gap thus left in the mesentery were sewed up separately, and then carefully apposed by single sutures. The cut edges of the bowel were brought together, and the Lembert suture used as in the other rents. I did not cut away any of the ragged edges of the wounds, but was careful to apply the sutures so that sound tissues only were placed in contact. No escape of fecal matter seemed to have taken place into the cavity of the peritoneum. At one point the omentum was torn and bleeding; it was caught up and included in a ligature. During the operation, which was necessarily very prolonged, the patient's general condition was for the most part fairly good. At one time the pulse fell alarmingly, but came up very promptly upon the irrigation of the peritoneal cavity with hot water. Very little bleeding was at first perceived, although some large clots were scooped out of the pelvic cavity; but we hoped these had accumulated by the oozing from the wounds above. When, however, the last part of the bowel was reached, fresh clots were found, and it was evident that free hemorrhage was going on at some point. This point became suddenly apparent on the right side of the pelvis at its upper part, where from an oval aperture there was a rapid gush of dark fluid blood, with some pulsatile movement. The tissues bordering this aperture were immediately transfixed with two tenacula at right angles to one another, and a ligature firmly applied. No more bleeding occurred.

The peritoneum was carefully cleansed, the intestines and omentum replaced, and the wound closed with silkworm gut sutures, the edges of the peritoneum being adjusted with special care. A rubber drainage-tube was placed in the wound, which was dressed very much as in a case of ovariotomy. The patient was then, at 4.30 A. M., very gently and cautiously transferred to his bed, with hot-water bags placed around him. His condition was, considering everything, good.

During the latter part of the operation several hypodermatic injections of whiskey were given, and

[1] Archives générales de Médecine, extracted from the Archives de Médecine navale.

[2] Read before the Academy of Surgery of Philadelphia, March 7, 1887.

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seemed to have an excellent effect. Only very slight after-effects ensued from the prolonged anæsthesia. Brandy and morphia were given rather freely, until 9 A. M., when champagne was substituted, and gr. x of quinine sulphate were given by suppository. As his pulse flagged, he had a hypodermatic injection of ♏x of tr. of digitalis every hour. He, however, steadily sank, although his mind was clear, and he was able to make an intelligent statement as to the manner in which he received his wound. At about noon his temperature began to rise, and at 3 P. M., it was 103.6°. At 5 P. M., the abdominal cavity was washed out by a stream of distilled water, at 110°, passed through the drainage-tube. The effect was good, but only for a short time. His pulse increased in force, his respirations became less shallow, and the tone of his skin improved. Soon, however, he again sank, and died at 6.45 P. M., about eighteen hours after the shooting, and about fourteen hours from the conclusion of the operation.

At the autopsy, eighteen hours after death, the abdomen only was examined. There were some evidences of peritonitis in slight coating of lymph on the serous surfaces, and some adhesion of the intestinal coils to one another. No wounds were found except those that had been sutured, although most diligent and systematic search was made. The intestinal tube was carefully removed, and a current of water made to distend it. Everything held until an extreme degree of pressure was reached, the whole tube being dilated excessively, when one of the sutures close to the border of the mesentery gave way. For practical purposes, the closure had been efficient. There had been no more bleeding. The wounded vessel was found to be the external iliac vein, just beneath Poupart's ligament. Beyond this, along the thigh, there was a track full of blood, along which the bullet had passed to its final resting-place close to the femur. It was very slightly furrowed by contact with the bone.

REMARKS.—Notwithstanding the fatal issue of this case, it seems to me by no means unsatisfactory in the retrospect; and it certainly presents some interesting and instructive points, to which I desire very briefly to call attention.

Although the operation failed to save the man's life, it did in the opinion of all who saw the case prolong it. The man was able to make a clear statement as to the way in which his injury was received, and could have attended to affairs of importance if it had been needful for him to do so.

Laparotomy for penetrating wounds of the belly belongs, of course, to the antiseptic or most recent period of surgery. It was dimly foreshadowed, however, as long ago as 1855, by Guthrie,[1] who says:

"When it is obvious, from internal hemorrhage, or from the discharge of fecal matter, or from the introduction of the finger, by which it can be felt, that a large hole or rent has been made in an intestine, the wound should then be enlarged so as to allow its being brought into sight, when the edges should, if required, be smoothed, and the continuous suture applied in the manner directed, Aph. 391."

Dr. Hunter McGuire, in an address on "Operative Interference in Gunshot Wounds of the Peritoneum," read before the American Medical Association, in 1881, urged that "the wound in the abdominal wall should be enlarged, or the linea alba opened, freely enough to allow a thorough inspection of the injured parts." In a foot-note he refers to the fact that he had advocated the same idea in 1873, before the Virginia Medical Society.

Otis, in the surgical volume of Part II. of the *Medical and Surgical History of the War of the Rebellion*,[1] published in 1876, expresses the opinion that "it appears probable that laparotomy . . . will henceforward be employed with increasing frequency, not only in the treatment of morbid growths, but in obstructions and wounds of the abdominal organs."

Dugas, in the same year, very distinctly and clearly laid down before the Surgical Section of the International Medical Congress the exact course pursued in the case I have reported,—a course which by antiseptic precautions is now rendered far safer than it was when he had the courage to recommend it.

McGuire, in the paper above quoted, refers to Otis and Dugas as having advocated "the suggestion of Legouest for operative interference in intestinal wounds." Legouest, however, can scarcely be considered as the pioneer in this bold advance, unless the following expression is very liberally construed:

"It is always to be feared, in gunshot wounds of the intestine, that one of the perforations may escape the search of the surgeon; hence it is proper to enlarge the wound in the abdominal wall, to draw out the portions of intestine in which the finger perceives evidence of damage, and to stop only when the investigation has reached its utmost limit."[2]

This is going very little farther than the position reached by Guthrie, eight years previously; and to neither of these eminent surgeons did the brilliant idea of abdominal section, properly so-called, suggest itself.

Legouest, in the passage just quoted, touches a question which has always been in my mind in reference to the closure of gunshot wounds of the intestines, and especially since the practice of laparotomy in these cases has assumed its present aspect; and that is as to the possibility of being sure that all the damaged points have been found and secured. The case now reported seems to me to go far to show the certainty with which this essential object can be attained. It is, within my knowledge of the cases on record, second to only one (the successful one of Dr. J. B. Hamilton), in the number of lesions of the bowel. Dr. Randolph Winslow has published[3] an instance in which there were twenty-eight wounds of the intestines and bladder; but these were only discovered at the autopsy, no operation having been performed during life. As to the far

[1] Commentaries on the Surgery of the War in Portugal, etc., p. 515, Am. ed., 1862.

[1] Page 206.

[2] Traité de Chirurgie d'Armée, 1863, p. 545.

[3] Trans. of the Med. and Surg. Faculty of Maryland, 1885.

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greater advantage in this respect of the modern practice over that recommended by Legouest and Guthrie, there can be no question.

Another and most important point gained by the later plan is in the cleansing of the peritoneum. When the surgeon, following the advice of Legouest, felt with his finger for a wounded bowel, drew it out, and sought for other wounds even "to the utmost possible limit," what security had he that there had not been, from some of the openings, an escape of fecal matters into the peritoneal cavity? How could he be sure that when he returned the carefully sutured bowel to its place, and closed the enlarged wound, he was not shutting up within the abdomen substances, which would inevitably provoke fatal peritonitis? It is surely in this respect, as well as in dealing with the mere injury to the bowel, that the extreme boldness of the modern practice is in the highest degree conservative.

I cannot but note with dissent one idea advanced, with some reserve indeed, by Dr. McGuire. He suggests that if his experience is confirmed by that of other observers, "the presence or absence of prolonged shock will help us to determine the presence or absence of visceral lesion." Several cases which have come under my own observation incline me to doubt the reliability of this test. Thus in one instance reported by me last year,[1] a wound of the stomach, liver, and internal mammary artery gave rise to so little shock that the patient, a woman, was able after her admission to the hospital to sit up in bed and undergo a careful physical examination. In another, the previous year, a man who had four wounds of the intestine, scarcely presented any symptoms of collapse until the approach of death from peritonitis several days later.

In the case now reported, the degree of shock manifested was certainly not such as to lead us to suspect not only such extensive damage to the bowel, but copious internal hemorrhage as well.

An important factor in producing death in my case seems to me to have been the great loss of blood from the wound of the iliac vein. And the question may perhaps be raised whether, in any case where upon opening the abdominal cavity a considerable quantity of blood is found to have been effused, it would not be better first to make search for the source of hemorrhage, to secure the vessel or vessels, and then to attend to the lesions of the bowel. There was here, however, a sufficient amount of oozing from different points to account apparently for the formation of the clots first noticed, in the time that had elapsed since the shooting. It would, of course, be the plainest dictate of common sense, if blood were seen pouring out, to stop it. But at the present stage of experience with these procedures, it may not be amiss to suggest that outside sources of hemorrhage,—outside, I mean, of the bowel itself,—should be first of all sought for, as a regular practice; and thus one cause of possible embarrassment, and even of grave risk, be set aside.

As to the actual process of suturing the wounds of the bowel, a few words may be said. None of the wounds were pared of their ragged edges, as generally advised. I omitted doing so on account of the delay that would have been occasioned; on account of the possible loss of substance in some places; and because it seemed to me that whatever was useless would, had the patient recovered, have been simply cast off into the lumen of the bowel, and carried away along with the fecal mass.

The Lembert suture was, as stated, used throughout both in closing the wounds and in uniting the cut ends of the gut where the resection had been done. I employed it because my colleagues favored it, and there was no time for discussion on minor matters. Yet the Gély suture seems to me to be, in some respects, preferable. Let me say, however, that I should not use it as generally described, and as I presume its inventor intended (for I have never seen his original account) that it should be executed. I should merely bring the ends together and tie them, instead of crossing them and reinserting them; thus making, not a continuous suture, but a succession of double interrupted sutures.

Less tissue need be taken up by Gély's suture, so that in a successful case the bowel would be left afterward with its calibre less encroached upon than by Lembert's. The sutures extend along the side of the edge of the wound instead of directly across it; thus there is a sort of splinting of the tissues which would seem likely to give greater firmness to the closure. Moreover, as the thread is carried along the edge of the wound, some time must be saved, since two points of the suture are made with each insertion of the needle.

As to the relative efficiency of the two methods in preserving the apposition of the tissues, I am not aware of any observations warranting a statement; but hope to be able at an early day to make some experiments with a view to testing the question.

The needles used had three-sided spear points; and several times the punctures made by them bled so freely as to demand attention. In any future case I should employ round needles much like those in common use, but shorter.

It will perhaps be noted that in the foregoing account nothing has been said of any search for the bullet. But, in fact, the survey of the abdominal cavity was quite complete, and it seemed certain that the wound of the iliac vein indicated the point at which the missile had passed out of the pelvis into a region where it would be comparatively harmless. It would have been worse than absurd to dissect down along the thigh for an article of so little value or importance, and I do not think the idea crossed the mind of any person in the room.

I offer this clinical record, with the brief comments which the pressure of my other work has allowed me the leisure to make, as a contribution to the accumulating experience of the profession in a most important, but as yet little explored field of surgery.

[1] THE MEDICAL NEWS, July 3, 1886.

INTUBATION OF THE LARYNX.

BY GEORGE W. MASON, M.D.,
SURGEON TO ST. JOSEPH'S HOSPITAL, BLOOMINGTON, ILLINOIS.

IN the early history of any new and important operation, it is desirable that there be recorded as many cases as possible, from which to make a just

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estimate of the value of the operation. For this reason, and because of some personal observations and experiences not noted by other writers, I desire to report the following cases:

CASE I.—Dr. M. D. Hull, of Arrowsmith, Ill., attending physician. Eva C., æt. eight and a half years, well nourished and healthy appearing, had been attending school in a neighboring town, where diphtheria had been prevalent. She had been suffering from a "cold" for several days prior to December 10, 1886, when she was removed to her home. Dr. Hull was summoned December 12, and diagnosticated membranous croup, and gave an unfavorable prognosis. His treatment was energetic with chlorate of potash and tincture of iron, together with quinine and calomel, and steam inhalations.

13th. There was much dyspnœa.

14th. I first saw the patient with Dr. Hull at 10 P.M. She had a very labored respiration from laryngeal stenosis, and a "croupy" cough. She was endeavoring to obtain relief by inhaling steam. Her pulse was 144, and temperature elevated. Inspection showed some pharyngitis, but for the most part the fauces were pale and anæmic. On the anterior upper portion of the left anterior pillar of the pharynx there was a spot, the size of a pea, that appeared like the beginning of a diphtheritic patch. From her respiration it was supposed that the membrane had not yet extended below the glottis. A laryngoscopic examination was easily made, and revealed an acute general laryngitis, with no membrane above the vocal cords. A membrane was seen extending from the vocal cords downward, with a tongue-like projection upon the epiglottis.

Intubation was recommended, and promptly consented to by the friends. Assisted by Dr. Hull and the nurse, on the second attempt, I inserted the largest O'Dwyer tube. But, before the thread was removed, the nurse relaxed her hold on the child's arms, when she instantly snatched the thread, and so extracted the tube. After a few minutes rest, on a third attempt, I successfully introduced the tube, giving prompt and great relief to respiration.

Shortly afterward, with a severe cough, she ejected the tube, and immediately afterward, a perfect membranous cast of the trachea three and one-half inches long, including the tongue of membrane on the epiglottis before described. The upper portion was thick, the lower thin. Respiration was so much relieved that it was not necessary to reintroduce the tube. The previous treatment was continued with calomel gr. ss every hour.

15th. Patient doing well. Respiration good. A spray of solution of pepsin was recommended.

16th. 9 P.M. I was summoned to introduce the tube again, but found no laryngeal dyspnœa to require interference. Pulse 130. Temperature 102.2°. Respiration fairly good. Tongue furred. Pillars of the fauces red. A diphtheritic membrane three-fourths by one and one half inches was seen on the posterior wall of the pharynx, where I had caused a slight abrasion of the mucous membrane with my finger-nail as I made my first attempt to raise the epiglottis when inserting the tube. The capacious pharynx gave another good opportunity to use the laryngoscope. There was general laryngitis, the membrane being intensely red. New membrane could be seen forming below the vocal cords, but not upon them. Whistling, sibilant, and subcrepitant râles were heard over the upper lobe of the left lung, and sibilant râles over the lower lobe of the right lung posteriorly. She complained of pain in her head and abdomen. The latter was ascribed to the calomel. Intubation was not indicated. Treatment was continued as before with local applications of a strong carbolic acid solution to the throat. Dr. Hull informs me that the patient died the next morning from congestion of the lungs.

CASE II.—Dr. H. C. Littlejohn, of Farmer City, Illinois, attending physician. Milton S., æt. eight years, living in the same town where the first patient contracted her disease, was a slender boy, healthy, but not robust. Two weeks previous to this sickness he had had a mild "diphtheritic sore throat," from which he apparently recovered. He was taken ill on December 20, 1886, from exposure near an open window while at school, and was treated with domestic remedies. The next day difficult respiration developed, and Dr. Littlejohn was called. He gave a diagnosis of membranous croup, and an unfavorable prognosis. This opinion was subsequently concurred in by Drs. Gardner and Norris.

23d By noon the symptoms became so urgent that the only relief to be offered was by a surgical operation. I was summoned by telephone to perform either intubation or tracheotomy. About 4 P.M., when I reached the patient, respiration was so difficult that the child could not have lived till midnight unless relieved. Pulse 150; temperature not high. Membrane thought not to be below the glottis. Laryngoscopic examination was readily made, and revealed general congestion and inflammation of the pharynx and larynx. There was no membrane above the glottis, but one extended from that point downward. The chink of the glottis was very much narrowed.

The operation was explained and readily consented to by the patient and his parents. With the assistance of Dr. Littlejohn and a friend, I at once operated, and in a few seconds had the largest O'Dwyer tube successfully in the larynx. The results were immediate. After a very few minutes of coughing, the respiration became as quiet as in health; the countenance became bright, and general relief was experienced. In ten minutes he had fallen into a quiet sleep. Half an hour later he had taken some water and a little nourishment. The irritation from the presence of the tube had entirely subsided within an hour. At 5 P.M. pulse 144; temperature 101.5°; respiration 21. At 9.30 P.M., pulse 136; temperature 100.8°. Has been sleeping most of the time. Wants to know "if he can go down town to-morrow." He has taken a small cup of coffee, and a tumbler and a half of milk and cream, besides hourly doses of $\frac{1}{64}$ grain of bichloride of mercury. Has difficulty in swallowing, which is to some extent overcome by sipping from a saucer. The air in the room is kept charged with steam.

24th. Temperature at one time, 104°.

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25th. Pulse 118; temperature 102°; respiration 26. Swallows fairly well; complains of the tube hurting him in swallowing; takes nourishment well; stomach was slightly irritable, but is better; no signs of lung trouble. Has been taking digitalis and quinine, and using a steam spray with carbolic acid, and also pepsin, with relief. The membrane or mucus seems loose in the throat.

26th. Pulse 104; temperature 100°; respiration 24. Appears bright; has vomited a little to-day; the right lung is slightly affected.

28th. At 3.45 P.M., just five days after its insertion, assisted by Dr. Littlejohn, I removed the tube. There was very little coughing. Some rusty mucopurulent matter, as of broken-down membrane, was expectorated. The patient took nourishment better, having refused it for the last day or two. Laryngoscopic examination showed inflammation, but no membrane. There was some evidence of systemic infection, and a feeble respiratory murmur over the base of the right lung behind. The treatment, according to indications, had been digitalis, quinine, carbonate of ammonia, and whiskey. The bichloride of mercury, which had been increased to $\frac{1}{32}$ grain, was now discontinued. At 9.30 P.M. Pulse 114: temperature 101.3°; respiration 30.

30th. Dr. Littlejohn reports the patient doing very well. Pulse 104; temperature 99°. Lung clearing nicely; tongue has begun to clean; expression good; takes more food; breathing very natural. His convalescence was uneventful and his recovery complete.

CASE III.—Dr. J. L. White, of Bloomington, Illinois, attending physician. Ida L., æt. about four years, was an inmate of the Illinois Soldiers' Orphans' Home, at Normal, Illinois, having been recently admitted. She had been suffering from whooping-cough, and recently developed symptoms of croupous pneumonia, or, considering the subsequent history, membranous bronchitis. Still later, membranous croup supervened, about five days from the beginning of the lung trouble.

By the use of calomel and jaborandi, combined with steam inhalations from lime water, and supporting treatment, there appeared to be a beginning of resolution in the lungs. Laryngeal dyspnœa had existed about three days before the operation. A portion of membrane about as long as one's little finger had been expectorated with some relief.

January 15, 1887. 10 A.M. I first saw the patient. She was apparently moribund; face pallid; aëration of blood bad; respiration feeble and croupy; pulse rapid and feeble. Without delay I performed intubation with the assistance of Dr. White and the nurse. The patient rallied very soon. The eyes, which had been dull, half closed, and dry with inspissated secretions, became bright and clear at once; respiration and aëration improved immediately. There was but little cough from the presence of the tube. In ten minutes the patient was in a quiet, natural sleep, with good respiration and an improved pulse. It looked as though she might recover. At 8.45 P.M., Dr. White reported the patient as doing very well, having strength, and retaining rectal alimentation, and thought she would recover. She died about 10 P.M., with no sign of dyspnœa, but quietly—probably from asthenia. When the tube was removed next day it was found clear.

REMARKS.—Out of these three cases, one, the second, was saved—not an unfavorabe showing when the character of the cases is considered. The first died probably from extension of the membrane to the lungs. The third case was as unfavorable as it is possible to imagine, and the final result was to be anticipated. Yet even in this case intubation did all that was possible, in that it prevented death from laryngeal stenosis.

It is interesting to note that satisfactory laryngoscopic examination was had in two of the cases:

CASE I., by the subsequent appearance of diphtheritic membrane in the fauces, has a bearing upon the identity of membranous croup and diphtheria. In each case the nature of the operation was carefully explained to the patient, and thus his willing coöperation was secured.

CASE III., from a retrospective view, appears to have been one in which the membrane first formed in the bronchial tubes, and afterward extended upward to the larynx—just the reverse of what usually takes place.

A little point, but none the less valuable, is that the nail on the index finger of the left hand should be trimmed as short as possible, that no injury may be possible from its introduction into the throat.

From my previous unfavorable results with tracheotomy, and from my experience so far with intubation of the larynx, I can mention the following points in favor of the latter operation:

1. It involves no cutting and is bloodless, hence,
2. Parents and friends readily consent to it when they would not to tracheotomy.
3. It gives a larger percentage of recoveries.
4. There is no perceptible shock after the operation.
5. There is no risk of systemic infection because of an open wound.
6. It does not expose the lungs to inflammation by the air not being prepared for inhalation by passing through the upper air passages.
7. It does not preclude a subsequent tracheotomy.

TOXIC EFFECTS OF SMALL DOSES OF DUBOISINE.

BY CHARLES W. KOLLOCK, M.D.,
OF CHARLESTON, SOUTH CAROLINA.

Two instances of poisoning by small doses of duboisine have lately come to my notice; one reported by Dr. Chadwick at a meeting of the Leeds and West Riding Medico-Chirurgical Society, recorded in the *Lancet* of January 8, 1887, and the second occurring in my own practice.

In the former, $\frac{1}{100}$ gr. of the drug "instilled for examination of a senile cataract, produced a state of delirium lasting many hours, leaving the patient totally unconscious of what had occurred. There was great muscular weakness, and strange actions were performed."

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In the latter case a solution of duboisia sulph. (gr. j to aq. dest. fʒ ij) was prescribed for the purpose of examining the refraction of the eyes. One drop was instilled in each eye at 2 P.M., after which the patient took a nap. He awoke feeling somewhat dizzy, but had another drop put in each eye at 4 P.M. Upon going to dinner soon after he became so dizzy and blind (as he expressed it) that he was obliged to leave the table and lie down. I saw him about an hour later—three hours after first instillation. He was in bed, face flushed, pupils widely dilated, and body moving uneasily from side to side. Although apparently rational, his speech was thick, and remarks frequently without meaning or irrelevant. There was no headache, but mouth and throat were very dry, and he drank copiously of water. I directed that he be kept quiet, and that no more of the drug be used.

The next morning he came with his sister for examination, having fully recovered from the toxic effects of the drug. His sister, a bright and intelligent young lady, told me that although he seemed at times sensible, still he did not get quietly to sleep until 5 A.M., and that he continually talked to her as if she was some one else, but when asked who she was, invariably said "sister." The patient had no recollection whatever after leaving the dinner-table about 4 P.M., until late in the night, and did not remember my call, though he answered questions rationally. He said that he frequently wished to address some particular remark, but almost invariably said something else, and, though aware of his mistake, could not correct it.

The druggist, a very reliable man, was sure the prescription was properly compounded, and the prescription was correctly written, as examination afterward proved. The patient is strong and healthy, twenty years of age, but his sister says he becomes very delirious with the slightest attack of fever.

Dr. Chadwick "suggested that the susceptibility to this drug reached its maximum in *old age* [italics mine], and that similarity between the symptoms and those of senile atrophy, popularly known as 'softening of the brain,' might suggest that its action was by causing spasm of the arterioles, and might indicate a possible liability to that form of pathological change." The similarity between the toxic effects of the drug upon the two cases is marked; but while one was old and probably not strong, the other was a young man, stout and strong, of twenty years of age. Whether the symptoms were due to spasm of the arterioles, or not, I do not pretend to say, but we can scarcely draw conclusions from the age, as the effects were the same and ages widely different. $\frac{1}{100}$ gr. was used in Dr. Chadwick's case, and in mine $\frac{1}{240}$ gr. was instilled in each eye, which equals $\frac{1}{120}$ gr. in all, and this amount was twice instilled, with an interval of two hours. An accurate test of the pipette used for dropping the solution into the conjunctival cul-de-sac showed two drops to the minim. The medicine was administered by the sister, with most careful instructions to instil one drop in each eye at a time.

I may add that the errors of refraction were as follows: R., +1.25 D.; L., +1.75 D.

THE FIRST FIFTY CÆSAREAN OPERATIONS UNDER THE SÄNGER METHOD.

BY ROBERT P. HARRIS, M.D.,
OF PHILADELPHIA.

IN this journal on July 17, 1886, I presented a full tabular record of 28 Sänger operations, and propose at a future day, when all the particulars can be obtained, to extend the same to fifty. Since this method has been so much modified and simplified, as compared with the original device of Sänger; leaving out both his muscular resection, and separation of the peritoneal coat, it has been contended by some writers that there is no propriety in any longer coupling his name with it. This I for one cannot advocate, for there are other important features still left, in the seroso-serous multiple suturing of the uterine wound, as originally advocated by Dr. Sänger, which constitute the chief value in the method, over the old Cæsarean section. It is true that the seroso-serous welting of the peritoneum originated with Jobert (de Lamballe), who applied it to intestinal wounds. It is also true that the interrupted superficial suture of the peritoneum, by which its serous surfaces are kept in apposition, was devised by Lembert, for intestinal closing. It is also to be admitted that Dr. Sänger did not test his method for four and a half years after its first trial by Leopold, of Dresden, and stands eleventh in fact, as shown by a recently communicated record; and that he was the tenth man to operate. But who was it who advocated first, in writing, the application of the Jobert-Lembert system of suturing to the uterine wound in the Cæsarean section: and who also advocated the importance of employing many deep and superficial stitches in this wound? The uterine wound was sutured in the United States more than twenty times before Dr. Sänger wrote his paper, but no one ever turned in the peritoneum, and few used more than six deep sutures, the maximum being ten, and that number in only two instances; in 1870, and in 1874. The case of 1874 recovered, but was not reported until 1885, after the operator had done a second operation. In his report, Dr. Ingram, of Montezuma, Georgia, says that he sutured the uterus with carbolized silk, inserting 3 deep stitches, 3 more superficial, and 4 into the peritoneum only. In the records of 151 American Cæsarean cases, this is the only mention made of using peritoneal sutures prior to 1882. The value of the multiple system of suturing lies in the fact that the gaping *force* is so divided, as to reduce very materially the individual tension upon each stitch, and thus is prevented what had been so often found on autopsy, a gaping wound, with escaped uterine discharge in the peritoneal cavity. To Dr. Sänger's writing is certainly due the improved results in the Cæsarean operation in Germany. He was the means of starting a series of improvements which have culminated in the present system of operation, to which, by an almost universal assent, the name of "Sänger" has been given.

At the time of Leopold's first trial of the Sänger method, on May 25, 1880, there had been seven trials of the Porro operation in Germany, all fatal

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to the women, but saving four children. A subsequent experience diminished the percentage of mortality, but still 16 women were lost out of 27, and 8 of their children.

Out of the discouragement produced by the Porro mortality in Germany grew several modifications of the Cæsarean operation, only one of which has stood the test of experience and become popular by success. The Sänger method has certainly worked a Cæsarean revolution in Germany, and to-day the Porro operation, even when as successful as in Milan, has an unapproachable competitor; for the success in her Maternity is far exceeded by that of Dresden.

The early record of the Porro operation shows that 20 women and 41 children were saved under the first 50, and 20 women and 36 children under the second 50.

Under the first 50 Sänger operations 35 women have been saved, or 70 per cent. against 40 by the Porro; 43 children have been saved, and probably 46—3 are yet to hear from. These cases are distributed as follows:

Countries.	Cases.	Women saved.	Women lost.	Children saved.	Children lost.	Number of operations	Per cent. of women saved.
Germany,	33	29	4	30[1]	1	16	87$\frac{88}{33}$
Austria,	5	2	3	5	0	3	40
United States	5	0	5	2	3	5	0
Italy,	3	2	1	3	0	2	66⅔
Russia,	2	0	2	2	0	2	0
France,	1	1	0	1	0	1	
Switzerland,	1	1	0	?[2]	...	1	
Total	50	35	15	43[1 2]	4	30	

Leipzig Maternity, operations 7, women saved 7, children saved 7
Dresden " " 15, " " 14, " " 15
Innspruck " " 2, " " 2, " " 2
24 23 24

Mr. Lawson Tait will be obliged to modify somewhat his opinion as to the mortality of the Cæsarean operation, which, when properly performed and promptly resorted to, is capable of securing such marvellous results to mothers and children. He will also have to reduce his comparative estimate of the Porro operation, which has taken a second place in its results. He, however, is inclined to favor the latter, because after the former the woman may again become pregnant, and require a repetition of the operation, which has eight times happened in the United States, and once again for a third time.

I return thanks to Dr. Sänger for repeated acts of kindness in furnishing me with the records of Cæsarean operations, some of which were communicated by their operators to him, and have not yet been published.

[1] Two to hear from; children probably living.
[2] One to hear from; child probably saved.

HOSPITAL NOTES.

GERMAN HOSPITAL.

Service of JOHN B. DEAVER, M.D.

TREPHINING FOR HEMORRHAGE FROM MIDDLE MENINGEAL ARTERY.

Reported by DR. GEORGE A. BODAMER, Resident Physician in Chief.

A. R., aged eighteen, was admitted to the German Hospital, December 17, 1886, with pistolshot wound over the left temporal region; the history of the case is as follows: While A. R. was playing with several companions, one of them, with a single-barreled 22 calibre pistol, attempted to shoot over his head, when the hand in which the pistol was held, being but about twelve inches away from the side of the head, was drawn down by another companion, and the pistol accidentally discharged.

Upon probing for the bullet the external table of the skull at the point corresponding to the wound in the scalp was found denuded of its periosteal covering and slightly roughened. The patient at the time of admission presented no head symptoms, was perfectly conscious, and suffered no more pain than usually accompanies such wounds. The wound was dressed antiseptically, and the patient was placed in bed. Upon making his visit through the wards the next morning Dr. Bodamer noticed that symptoms of aphasia had developed, and he notified Dr. Deaver, the attending surgeon on duty, of the nature of the case.

Upon the arrival of Dr. Deaver, the patient was taken into the clinic, and in the presence of the class was etherized and trephined. The outer wall of the cranium, at a point measuring two inches posterior to the external angular process of the frontal bone and two inches above the zygomatic arch, was exposed by dissecting up a horseshoe-shaped flap from the scalp. This was the point of the skull with which the ball came in contact, and being immediately over the base of the second and third frontal convolutions and the commencement of the ascending frontal convolution, the portion of the hemisphere in relation to the ascending limb of the fissure of Sylvius and the lower extremity of the fissure of Rolando, which region is known as Broca's convolution, or the region of speech.

The roughening which was detected at this point was caused by a small portion of the bullet imbedded in the outer table of the skull. The remaining part of the bullet was found one inch behind and below this point. It lay beneath the temporal muscle, and had assumed a rounded and flattened form. The trephine included the roughened portion of the skull. Upon removal of the section of bone, the internal table was found to be fractured with no depression of the fragments.

Upon the dura mater at this point was seen a clot of blood caused by hemorrhage from the middle meningeal artery. This was removed, catgut drainage was placed under the flap, the flap adjusted but not stitched, and the part dressed antiseptically.

As soon as the patient recovered from the effects of ether, no symptoms of asphasia remained, and he was again able to converse.

On the morning of the day of operation the tempera-

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ture was 100° F., the following morning was 98.3° F., and remained from this time normal. He was discharged cured, January 22, 1887.

Treatment.—Ordinary treatment was pursued, viz., absolute rest; cold to the head; calomel, bromides, and a restricted diet. Patient was not permitted to get out of bed for four weeks.

Dr. Bodamer saw the patient on March 3d, when he stated that he was feeling as well as ever.

MEDICAL PROGRESS.

NEW TREATMENT OF PHTHISIS.—A new method of treating phthisis has been proposed, but apparently as yet but slightly tried, by PROFESSOR KREMIANSKI, who read a paper on that subject at the recent Moscow Medical Congress, which provoked a good deal of discussion. The idea is based, first, on the fatal effect of the most dilute solution of aniline on Koch's bacillus; and, secondly, on the fact that aniline seems to be but slightly, if at all, poisonous to the human body. Professor Kremianski proposes to introduce aniline into the lungs, and, indeed, the circulation generally, by inhalation, so that the phthisis bacilli should be bathed in a very weak solution of aniline, wherever they may be. This, he thinks, would kill them, and render even pulmonary cavities free from bacilli, so bringing them into the condition of healthy granulating ulcers, which may be expected to cicatrize. A committee has been appointed, including Professors Subbotin and Ostroumoff, who expressed themselves at the meeting as strongly opposed to the plan, for the purpose of observing Professor Kremianski's proposed experiments in one of the Moscow hospitals. Two cases in which the aniline treatment had been successfully tried were detailed. A lad of eighteen, who had undoubted phthisis, was ordered a four drop dose of aniline (but took by mistake three times the proper quantity) combined with nux vomica, mint water, and antifebrin, his diet being good, including dried meat, kvas and oranges. He was also given inhalations of atomized aniline. A remarkable change took place almost immediately, all the râles disappearing; his temperature, respiration, and pulse becoming normal. His skin, however, assumed a slightly blue tinge, but whether this was as permanent as the cure is represented to have been is not stated. The second case was a complicated one, there being tubercular peritonitis and meningitis, together with typhoid fever, present at the same time as pulmonary phthisis. Aniline inhalations, washing out the pulmonary cavities with corrosive sublimate and antifebrin, were employed, together with a special acid diet, as in the other case. Here, too, the results are said to have been remarkably good, the bacilli disappearing from the sputum, and the patient regaining his health entirely. No mention is made in the abstract published by the *Vrach* of any change of color in this patient's skin. Amongst the various replies that were made to Professor Kremianski, DR. ZAKRZHEVSKI, of Helsingfors, remarked that, admitting the facts as stated, still there was nothing to show that the aniline had been the cause of the cures. He himself had had surprisingly good results in phthisical cases, the disease becoming completely arrested by simply giving increased nourishment and prescribing antipyrin.—*Lancet*, March 5, 1887.

TREATMENT OF DIPHTHERIA.—The following is the treatment recommended by Dr. John Irving as quoted in the *Journal of Laryngology* for March, 1887. In cases uncomplicated by laryngeal symptoms the writer regards this as specific:

℞.—Liq. ferri dialysati . . . . ℥ss.
Glycerini acid. carbol. pur. (B.P.). . ℥ss.
Glycerini pur. . . . . ℥iss.
Syrupi simplicis . . . . ℥iss.
Misce bene, et adde aquam ad ℥ij.

One teaspoonful every two hours, and continue for eight days.

In a case of laryngeal diphtheria, the author uses

℞.—Pot. iod. . . . . gr. v.
Sol. nitro-glycer. (1 per cent.) . ♏iv.
Vin. antimonialis . . . ♏xlvis.
Glycerini pur. . . . . ℥ij.
Aq. ad . . . . . ℥ij.
Misce. One teaspoonful every two hours.

INTRAOCULAR CYSTICERCUS.—DR. VAN DER LAAN, writing in a Lisbon journal, gives an account of an ophthalmic case which puzzled him for some time. A man had been suffering from inflammation in the left eye for about a year. On examination there were found serious irido-choroiditis, almost entire loss of vision, opacity of cornea, and increased intraocular tension. Several times paracentesis was performed with some benefit. Iridectomy being refused, mercurials and purgatives were given for twelve months, during which time considerable improvement had taken place, ultimately permitting an ophthalmoscopical examination to be made. The retina was seen to bulge forward in one spot, where it was of a yellowish-white, the prominence increasing as time went on. It was observed that its form varied, being oblong and round by turns; the patient also said that he sometimes felt something moving in his eye. He then remembered that, when two years previously he had consulted a country practitioner, he had stated that he could "detect an organism, possibly the ovum of a tænia," a diagnosis which now proved to be correct. Dr. Van der Lann has published descriptions of the only two other cases of intraocular cysticerci he has seen in Portugal, which in many points differed from this case. He does not propose to operate until the cysticercus has succeeded in perforating the retina and thrusting its head and neck into the vitreous, when he hopes by means of a sclero-choroidal incision to free the patient from his parasite and to preserve the sight of the eye.—*Lancet*, March 5, 1887.

DIPHTHERITIC PARALYSIS OF THE OCULAR MUSCLES.—REMAK found this phenomenon present in 100 cases of diphtheria; it manifested itself from two to six weeks after the first symptoms of the malady and most often was accompanied by paralysis of accommodation.

Only one of those afflicted presented the association of mydriasis with paralysis of the ciliary muscles; twenty-eight were simultaneously attacked by paralysis of the soft palate with the ocular symptoms;

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one patient had paralysis of the third and sixth nerves. The last mentioned patient presented in addition tabetic symptoms; at the autopsy hyperæmia and minute hemorrhages were found in the nervous centres.

Diplopia was present in most of the cases. The knee reflexes were lacking in four cases, and visual acuteness was diminished in the greater number. Remak does not share the opinion of Nagel, who attributes visual troubles after diphtheria to a neuritis caused by the diphtheritic virus.—*L'Union Médicale*, February 17, 1887.

VON FRISCH'S CONCLUSIONS UPON PASTEUR'S METHOD.—At a recent meeting of the Vienna Academy of Sciences VON FRISCH reported his conclusions, after reviewing the work of Pasteur.

1. Hydrophobic poison exists in its most concentrated form in the central nervous system of the infected animal.

2. Small amounts of the cerebro-spinal substance of an animal which died from rabies, when injected subdurally into another animal, produce, after incubation periods of varying length, the same disease without fail; and this process may be repeated.

3. After subdural injection with portions of the spinal cord of men who have perished from hydrophobia, animals become ill with a disease which manifests identical symptoms, and has the same period of incubation; the identity of the process in men and animals seems established.

4. Hypodermatic injection of cerebro-spinal substance results in a less reliable infection and a longer incubation period than when the injection is subdural.

5. The quantity of the virus injected hypodermatically seems to be in inverse ratio to the length of the period of incubation; the less the quantity the longer the time.

6. By the progressive transmission by subdural injection of cerebro-spinal virus, there results, after a series of cultures, a shortening of the time of incubation, which is at first irregular, then regular, and finally cumulative.

7. The virus obtained from Pasteur, obtained by forty or fifty generations in rabbits, whose period of incubation is fixed for seven days, exceeds in strength the virus of "street rabies," not only in that its resulting disease appears earlier, but also in that animals inoculated with it by both subdural and hypodermatic injection invariably acquire the disease.

8. Pasteur's "seven days' incubation virus" varies in its period from six to twelve days; a virus of equal intensity results from the second and third generation of "street rabies."

9. The obtaining of a virus of seven days' incubation period can be accomplished by other methods than those followed by Pasteur, and a result obtained more quickly.

10. Drying the cerebro-spinal virus over potassium hydrate, at a temperature of 20° C., continuously diminished its power until, in from fourteen to sixteen days, it became inert.

11. Animals, the subjects of experiments, which had been inoculated with virus weakened by successive dryings, were protected by this weaker virus against the action of the stronger, provided inoculations with the stronger did not follow each other in too rapid succession.

12. Animals which had been inoculated by hypodermatic injection with virus increasing in intensity during ten days, were found not to be protected against infection with "street rabies," as Pasteur states, and must be treated by subdural injection to be positively safe.

13. Rabbits and dogs which had been inoculated by trephining in the subdural space with the virus of "street rabies," and then received preventive inoculation with a virus of sixteen days' time of incubation—Pasteur's method—became ill with rabies; a dog which escaped the disease from the first inoculation was reinoculated fourteen weeks later by trephining, and developed rabies eight days after infection.

14. In criticism of the above results Pasteur claims that the preventive inoculations were made too tardily. He recommends inoculation within twenty-four hours after the infection, inoculations every two hours, and repetition of the whole series of inoculations; experiments made by the writer gave not a single good result from this method; animals so treated acquired rabies.

15. These experiments, however, showed the following important results: That by the rapid repetition of inoculations with virus of increasing virulence, protection on the part of animals inoculated with weaker virus against subsequent inoculations with stronger virus is not to be expected. A number of rabbits and dogs which served in control experiments, and on which was performed intensive inoculation without previous infection, were, in the greater number of cases, attacked by rabies.

16. Animals which received the preventive inoculation after subcutaneous infection with "street rabies," were less liable to death from rabies, especially when the time extended to thirty-four days.

Von Frisch concludes that much more work must be done before it is demonstrated that animals can be protected from rabies by inoculation; that no real ground exists for the belief in the efficacy of preventive inoculation in the human subject, while there is a strong probability that through inoculation of virus disease itself may be transmitted.—*Berliner klinische Wochenschrift*, February 7, 1887.

ANTIPYRINE AS A STYPTIC.—Henocque and Huchard have used antipyrine for bleeding from the nose and on wounds on the hand and fingers. They applied eight grains by dusting on the wounds.—*American Journal of Pharmacy*, March, 1887.

PREGNANCY IN AN IMPERFECTLY CANALIZED UTERINE CORNU.—DR. NETZEL mentions, in a Scandinavian journal, a rare case of pregnancy occurring in the imperfectly canalized half of a bicornate uterus. The movements of the child had ceased in the thirty-third week of conception, and from that time the woman became thin and felt ill. Five months later Dr. Netzel was called in; the diagnosis was uncertain. He could not find anything corresponding to an extrauterine pregancy, and it was clearly not a normal intrauterine one. He performed laparotomy, and thus discovered that conception had taken place in the right half of a bicornate uterus. An elastic ligature was applied round the base of the tumor. The uterus was opened and a macerated fœtus extracted. The half of the uterus was amputated with the tube and the ovary. All went well until a month after the operation, when an abscess

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formed in the cicatrix of the abdominal wound, which was followed by a fistula. A quantity of silk and elastic ligatures came away a month later, and the woman ultimately recovered completely. Dr. Netzel thinks the rarity of such cases causes them to be confounded with extrauterine pregnancies, and with the "missed labors" of English obstetricians. He is of opinion that a more frequent resort to laparotomy would be of much service in throwing light on the subject. He mentions eight more or less doubtful cases as occurring in literature, including one reported by Dr. Keith, of Edinburgh. —*Lancet*, March 5, 1887.

IODOFORM AND SILVER.—A curious effect of iodoform upon silver is reported by Dr. Poncet, who had his attention directed to it by a patient, to whom he had been applying iodoform dressings, telling him that all soups and other diet for which she used a silver spoon had a very disagreeable taste, and the spoon itself had a garlicky odor. Upon investigating the subject Dr. Poncet found that silver that has been in contact with iodoform, or which is even touched by the fingers after they have been in contact with iodoform, acquires a nauseous odor, resembling that of garlic, which becomes more perceptible upon rubbing the silver. A drop of saliva from a patient fully under the influence of iodoform is said to be sufficient to impart this odor to silver, or the mere exposure of iodoform and silver in the neighborhood of one another. The odor is not that of iodoform, but is thought to be due to a decomposition product.—*Medical Press and Circular*, January 19, 1887.

CATALEPSY IN A MOTHER AND CHILD.—DR. VAN SCHOOT discusses in a Dutch medical journal a case of convulsive seizures of a peculiar kind in a woman in the seventh month of pregnancy. When he first saw her she was motionless, her face being cyanotic, but her temperature, respiration, and pulse normal. She was quite unconscious, and the slightly dilated pupils did not react to light. The arms were flexed at right angles, requiring some force to move the forearms. By means of chloroform all the contracted muscles relaxed, and some hours' sleep was obtained. Afterward she remembered nothing of the fit, but she stated that all movements of the fœtus seemed to have ceased, and no heart sounds could be detected. These attacks were repeated frequently for a fortnight, the urine being quite normal all the time. Large doses of bromide were given without effect, but some amelioration was produced by sulphate of atropine. Latterly the attacks were associated with considerable movements of the abdominal muscles. Some temporary benefit was obtained by subcutaneous injections of pilocarpine. At the conclusion of a fortnight from the first attack labor came on, a female child being born alive, which, however, died in a week's time, after repeated convulsions similar to those affecting the mother. The mother had no attack till the fifth day (the same day that the child's first attack occurred). After this there was only one more attack two days later, complete recovery ultimately taking place. The author, referring to the diagnosis, is disposed to exclude eclampsia, because, although there were clonic contractions of the abdominal muscles, the main spasm—indeed, at first the only kind of spasm—was tonic. The entire absence of albuminuria, too, tends to exclude eclampsia. Again, epilepsy may be excluded, as after the tonic no clonic spasms occurred, and as the limbs remained fixed in a certain position for one or two hours. He therefore considers that the attacks were of a cataleptic nature, both in the mother and child.—*Lancet*, March 5, 1887.

EXPERIMENTS UPON THE EFFECTS PRODUCED BY STEEL-COATED PROJECTILES OF SMALL CALIBRE.—At a recent meeting of the Surgical Society of Paris, M. CHAUVEL reported the following experiments with projectiles from ⅓ of an inch to 1¼ inches long and weighing from ½ to 1 ounce whose core was lead, but whose envelope was steel.

Ten experiments were made by firing with full charges at distances varying from 30 to 50 feet. The results were the same as those with other projectiles: the bones were split; the visceral wounds were considerable, and more cadavera, placed in succession, were perforated than with other missiles; the balls were not deformed.

In a second series of experiments but half a charge of explosive was used, and the velocity was lessened one-third. The wounds of the soft parts produced were not extensive, the apertures were not ragged, small, and the tracks of the wounds straight.

In bony tissues the cancellous extremities were pierced as by a trocar; the periosteal wound was small, but frequently of considerable length.

In the compact tissues the lesions were comminuted; there were numerous fragments and long fissures.

The conclusion was reached that these bullets were no more humane for use in warfare than those usually employed.—*Journal de Médecine*, February 20, 1887.

A NEW METHOD OF CULTIVATING TUBERCLE BACILLI.—In the *Annales de l'Institut Pasteur*, MM. NOCARD and ROUX describe some valuable experiments which they have been making on the tubercle bacillus. As is well known, Koch only succeeded in obtaining satisfactory cultivations in solidified blood-serum; and all who have attempted to cultivate these organisms have found it a matter of considerable difficulty. M. Nocard, in a previous paper, stated that he had obtained better cultivations when he added to the serum, before its solidification, 1 per cent. of peptone, 0.25 per cent. of chloride of sodium, 0.25 per cent. of cane-sugar. He noticed, however, that the surface of this material after a time became covered with a thin, dry, iridescent pellicle, due probably to desiccation and oxidation of the superficial layer; and that in this material the bacilli did not grow well. To obviate this, the authors added a small quantity of glycerine to the material, and found that they obtained better growth than previously. They then tried the effect of adding glycerine to nutritive material solidified by adding agar-agar, and found that, when 6 to 8 per cent. of glycerine was added, copious growth of the tubercle bacillus was obtained. This is a very important result, as the material is easily prepared, and as by its aid plate cultivations can be made. The authors have also found that, by the addition of 5 per cent. of glycerine to various cultivating fluids, excellent growth is obtained in the form of flocculi at the bottom of the flask, somewhat resembling cultivations of anthrax bacilli.—*British Medical Journal*, March 5, 1887.

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SATURDAY, MARCH 26, 1887.

EXCISION OF INTERNAL PILES.

THREE hundred consecutive cases of internal hemorrhoids cured by excision, without a death, a single instance of secondary bleeding and not followed by such complications as ulceration, abscess, stricture, or fecal incontinence, is the record of WALTER WHITEHEAD, of Manchester, which may be found in *The Brit. Med. Journ.* for Feb. 26, 1887.

The modified operation of excision, as performed by Whitehead, is based upon the frequency of relapse after the ordinary procedures resorted to on account of the dread of hemorrhage, the cause of which recurrence is that the vessels not only constitute individual tumors, but that the entire plexus of veins surrounding the gut is involved. The removal of the main protuberances has, therefore, no effect upon the minute venous radicles which exist between and behind them, since they soon enlarge, and, in their turn, give rise to new tumors. This disposition of the vessels has been revealed by the numerous operations practised by Whitehead, so that the truth of his assertions cannot be denied.

The operation is performed as follows: The anæsthetized patient having been placed in the lithotomy position, and the sphincters paralyzed by stretching with the fingers, the mucous membrane is divided, with scissors and forceps, at its junction with the skin around the entire circumference of the bowel, every irregularity of the skin being carefully followed. In this stage of the operation the incisions through the mucous membrane should commence posteriorly, and then be carried along the sides in succession, before completing the circle above, so that any oozing of blood may be below the work as it proceeds. The attachments of the mucous membrane and piles to the sphincters is then rapidly severed with the closed scissors or fingers, when the former, thus separated from the submucous bed on which they rested, are pulled down, and the hemorrhoids brought below the margin of the skin. Up to this point there is practically no bleeding; but in the next stage of the procedure, which consists in transverse division of the mucous membrane above the piles, the vessels are necessarily cut. To guard against hemorrhage, the mucous membrane should be divided by degrees, and each vessel twisted as it is cut. Before making any further incision in the bowel, the free edge of the piece of mucous membrane first divided is sutured with carbolized silk to the corresponding portion of the skin at the verge of the anus. This procedure is repeated until the entire circumference of the bowel is secured to the skin, the result being that a complete ring of pile-bearing mucous membrane is removed. Before closing the wound iodoform is insufflated between the raw surfaces.

While the patient is still on the table, a suppository of two grains of extract of belladonna is inserted into the rectum, the external parts are dusted with iodoform, and a strip of oiled lint is retained as an outer dressing with a bandage. The patient sits up on the fourth day, and is able to resume work in a fortnight. Pain after the operation is rarely complained of, but retention of urine occasionally follows.

The loss of blood at the time of the operation is so small as scarcely to merit notice, if care be taken to seize each vessel as it is cut with forci-pressure forceps and twist it. Indeed, Whitehead states that he has frequently operated on severe cases, and not found it necessary to twist a single vessel, and very often only one or two. In addition to the freedom from primary bleeding, there was not a single instance of secondary hemorrhage, so that the dread of hemorrhage is a delusion in the improved method of operating.

From the foregoing account it appears that Whitehead's procedure is as safe as it is radical, and that the pain is less severe than after the other methods commonly practised. So large and successful an experience certainly entitles it to a full and fair trial, although we may expect some records of free bleeding when the operation is performed by inexpert surgeons. That the operation is an excellent one is evident from the praise given it, by Lange, in THE MEDICAL NEWS for February 12, 1887, who, however, erroneously claims it to be his own procedure.

MEDICAL INSTRUCTION IN ITALY.

PROFESSIONALLY considered, Italy is almost an unknown field to American physicians, who rarely visit the peninsula, except in search of health, or to ex-

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amine its grand collections of paintings, antique works of art, and historic ruins. Few think it worth while to pay any attention to her hospitals, maternities, and surgical, obstetrical, or gynecological clinics, knowing little of the work done therein, and still less of the men engaged in it. Occasionally a surgeon will be heard to speak in complimentary terms of the progress made in his branch in Italy; but his language has only a general application. The late Prof. Francesco Rizzoli, of Bologna, who left a fortune of nearly $400,000, the bulk of which goes to found an orthopædic hospital, had a world-wide reputation. Prof. Edoardo Porro, of Milan, has achieved eminence by the introduction of a well-known operation that bears his name. Prof. Domenico Chiara is distinguished for his marvellous successes in obstetric surgery, first in Milan, and more recently in Florence. Prof. Pietro Loreta, of Bologna, earned reputation by his new operation, the digital divulsion of the pylorus, and the success which has attended it, in curing pyloric stenosis resulting from non-malignant ulcerative pyloritis. Prof. Ottavio Morisani has acquired distinction by reviving in Naples the much-condemned operation of symphysiotomy, and by the marked success attending its performance in saving mothers and children. Beyond these names, few are known on this side of the Atlantic, except to the small number who read Italian medical periodicals. The Italian professors feel that there has been a great revival in medicine in their country, and that they have been neglected too much by medical tourists in Europe, who have confined their visits to Great Britain, France, Germany, and Austria; going to Italy, if at all, simply as sight-seers.

There are more than twenty Royal Universities in Italy; the chief, in the order named, measured by their classes, are those of Naples, Turin, Rome, Bologna, Padua, Pavia, Palermo, and Genoa. There were in all the universities of the kingdom in 1885–1886, 14,633 students, of whom 5195 were engaged in medical studies. The professors who are best known for their obstetrical and gynecological work are: Prof. Domenico Tibone, of Turin; Prof. Domenico Chiara, of Florence; Prof. Ottavio Morisani, of Naples; Prof. Ercole Pasquali, of Rome; Prof. Fabbri, of Modena; Prof. Cuzzi, of Pavia; Prof. Calderini, of Parma; and Prof. Luigi Mangiagalli, of Catania. To whom may be added Prof. Edoardo Porro, Director of the Obstetrical School of Milan, and Prof. Paolo Negri, Director of the Obstetrical School of Venice. Of gynecologists not obstetricians, we specially mention Drs. Prelli and Berruti, of Turin; Dr. De Cristoforis, of Milan; Prof. Caselli, of Genoa; Dr. Ruggi, of Bologna; Prof. Bassini, of Padua; and Prof. D'Antona, of Naples. The most noted men of Italy engaged in general surgical work are Prof. Bottini, of Pavia; Prof. Bassini, of Padua; Prof. Corradi, of Florence; Prof. Durante, of Rome; Prof. Loreta, of Bologna; Prof. Novaro, of Siena; Prof. Caselli, of Genoa; Prof. D'Antona, of Naples; and Dr. Gerolamo Mo, of Turin. The chief ovariotomists of Italy, measured by the number of their cases and percentage of success, are Prof. Chiara, of Florence; Prof. D'Antona, of Naples; Prof. Negri, of Venice; Prof. Novaro, of Siena; and Prof. Porro, of Milan.

Obstetrical clinics are found in Palermo, Prof. Pantales; at Pisa, Prof. Minati; at Pavia, Prof. Cuzzi; at Padua, Prof. Frari; at Turin, Obstetrico-Gynecological Clinic, Prof. Tibone, and Chief Maternity, under direction of Dr. Michele Peyretti. Florence, Obstetrico-Gynecological Institute, Prof. Chiara; at Naples, Obstetrico-Gynecological Clinic, Prof. Morisani. The old Neapolitan Hospital for Incurables has an obstetrical department; Genoa, obstetrical clinic, Prof. Macari; School of Obstetrics in Milan, under Prof. Porro; Venice, "Maternity of the Civil Hospital and School of Obstetrics," Prof. Negri; Bologna, obstetric clinic, Prof Carlo Massarenti: Maternity, Dr. Cesare Belluzzi.

The larger cities of Italy are well supplied with hospitals. Bologna has: 1. The Clinical Hospital, about 250 beds; which has sections for medicine, surgery, obstetrics, diseases of the eye, of the skin, and for syphilis. 2. The Grand Hospital, with about 300 beds; two sections of medicine and two of surgery. 3. The Insane Hospital, with 700 beds. 4. The Maternity, 24 beds; attached to which is a Foundling Hospital, with 46 beds and 100 cradles. 5. The Military Hospital, 500 beds. In the Maternity, under Dr. Belluzzi, from 120 to 130 labors are conducted annually; and in the obstetric clinic, about 150 women are delivered; Prof. Carlo Massarenti is director, and attached to the service are Prof. Ercole Fabbri, Dr. Emanuele Bruer, Dr. Leopoldo Golineli, Dr. Ermanno Pinzarri, and Dr. Cesare Belluzzi. The University of Bologna celebrates next year her eight hundredth anniversary; her famous library occupies a hall 600 feet in length. The course of medical study in the Universities of Italy lasts six years. The lectures of each year are held from early in November to the middle or end of June, varying from seven and a half to eight months in the different schools.

In certain sections of Italy, rachitic deformity of the pelvis is frequently met with in obstetrical practice, and in other sections malacosteon is not rare. The treatment of such deformities has made her obstetricians skilful in pelvimetry; in the induction of premature labour with safety to mother and fœtus; and in the Porro-Cæsarean section. Prof. Chiara, of Florence, has had unparalleled success in this operation, and, more recently, saved two women with

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their children, by the improved Cæsarean section, of Leipzig and Dresden, the last having been performed on February 9th. In Naples, rachitic deformity often presents itself, and delivery by the old Cæsarean method having been almost universally fatal, the operation of Sigault has been revived with a remarkable degree of success. But as this method cannot take the place of gastro-hysterotomy in extreme pelvic deformity, the improved Cæsarean section of Germany will be employed where symphysiotomy is inapplicable, as the mortality by it has been much below that of the Porro operation.

TUBAL DISEASES.

THERE is no subject in gynecology that has attracted so much attention of late years as the diseases of the Fallopian tubes and their operative treatment. The discussions on these topics have been voluminous, almost always partisan in character, and rather acrimonious, so that Martin's contribution to the *Zeitschr. f. Geburtsh. u. Gyn.*, B. xiii. H. 2, aside from the value attaching to a careful investigation of a larger number of cases, is the more acceptable from its judicial tone, from the absence of prejudice, on the one hand, in favor of indiscriminate operative interference; on the other, in favor of an exaggerated expectant treatment.

The views expressed by Martin are based upon the observation of 287 cases of tubal diseases and upon a microscopic study of the specimens of diseased tubes removed from 61 women, from the latter of which it appears that there are a catarrhal or endosalpingitis, an interstitial salpingitis, and a follicular salpingitis in which the mucous membrane dips down into the follicles of the walls of the tubes.

Regarding salpingitis from another point of view, one must take into account the changes in the walls of the tubes, their thickening from inflammatory products, alterations in their peritoneal covering, the sinuosities or the complete obstruction of the tubal canal, giving rise to isolated collections of fluid, and the entrance into the tubes of micro-organisms, those so far observed being the microbes of puerperal septicæmia, gonococci, tubercle bacilli, and, in one instance, the microbe of actinomycosis. In these latter, the infectious diseases of the tubes, the puerperal form was, in the 287 cases observed, the most frequent, the gonorrhœal ranking next, while the tubercular form was the most disastrous in its results.

The course of tubal diseases ends, in the majority of cases, in recovery. In not one-fourth of all the cases observed was the operation for the removal of the uterine appendages considered justifiable. These statements are made by a man known everywhere as an unusually bold operator, and, coming from such a source, are of the greatest value, for the undoubted tendency of the discussions that have lately occupied medical societies and the medical press, has been to impress upon the minds, especially of younger men, the necessity for operative interference in tubal diseases, when, in point of fact, such operations, unless milder therapeutic measures have been first thoroughly employed, are often absolutely unjustifiable.

FIXATION OF A DISPLACED SEMILUNAR CARTILAGE.

IN displacement or luxation of one of the semilunar cartilages, an accident that occurs during a twist or wrench of the knee-joint when the leg is rotated outward or inward, the anterior attachments of the cartilage, and most frequently of the internal one, are separated. Patients who have once suffered from such a displacement are particularly prone to a recurrence of the trouble, and in many cases the ordinary plan of treatment by reduction and retention by an apparatus is a complete failure.

Under these circumstances, the comfort and usefulness of the subject being seriously interfered with, the method of fixing the cartilage, first practised, in 1883, by PROFESSOR ANNANDALE, and successfully resorted to by him in four cases, is worthy of adoption. The operation, described in the *British Medical Journal* for February 12, 1887, is performed in the following manner:

An incision is carried on the side corresponding to the detached cartilage, along the upper edge of the tibia from the ligament of the patella for a distance of three inches. Before opening the synovial membrane, bleeding points are secured, when the membrane is incised to the same extent as the superficial wound. The anterior margin of the cartilage having been brought into its proper position by a blunt hook, it is secured to the periosteum and fascia over the head of the tibia by several catgut sutures, when the external wound is closed by stitches, and the usual antiseptic dressings and a splint are applied. In the four cases recorded, the recovery was rapid, and good use of the joint was restored.

INTRAUTERINE INJECTIONS IN SEPTICÆMIA.

THE value of antiseptic intrauterine injections in the treatment of puerperal septicæmia has been so often proved that few physicians would dare to treat a case of the disease without resorting to them. Such injections constitute the causal treatment of the disease. Their employment, too, is indicated not only when the lochia become offensive, but also, independently of this, in cases of unequivocal septic infection; for such infection while usually associated with that condition, may occur without it, just as in rare instances a badly smelling discharge may be present and the infection absent.

The excellent paper, by DR. DAVIS, in the last

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number of THE MEDICAL NEWS, shows some of the dangers which may result from the use of corrosive sublimate injections, and suggests means by which these may be prevented. It is probable, as Fritsch has pointed out, that the evil done by corrosive sublimate injections is caused, not by the portion of the solution brought in contact, temporarily, with the uterine mucous membrane, whether that membrane be wounded or entire, but by that which remains in the uterus or vagina, and from which the absorption is gradual and not immediate. To obviate this evil, after an injection is used, the operator ought to compress the uterus, so as to empty it completely, the free escape of the fluid through a patent cervical canal being secured. Further, he might wash out the vagina subsequently with water that has been well boiled, and thus prevent the retention of the corrosive solution. Were these precautions employed, we would more rarely hear of serious symptoms following such injections. The strength of the solution in most cases need not be greater than 1 to 2000.

It is only exceptionally that more than two injections in the twenty-four hours are required. Continuous irrigation has been tried in these cases, but, like drainage, has nothing to commend it, and therefore should not be employed.

UPON examining the list of officers of Sections of the American Medical Association for the next annual meeting, as published in the *Association Journal*, it will be observed that of sixteen positions Illinois has four, Missouri three, Maryland two, and New York, Pennsylvania, New Jersey, Ohio, Kentucky, Arkansas, and Minnesota, each one. As is seen, two States—Illinois and Missouri—furnish nearly one-half of the appointees, the former having one more than the latter; but as Missouri has the presidency of the Association, she will probably not complain of unjust treatment.

The American System of Gynecology, which is being edited by Dr. M. D. Mann, of Buffalo, we are informed, will be published shortly by Messrs. Lea Brothers & Co., of Philadelphia. Among its contributors are found such prominent authorities as Professors Barker, Battey, Engelmann, Garrigues, Goodell, S. W. Gross, Reeves Jackson, Lusk, Mundé, Reamy, Thomas, and Van de Warker. The work will doubtless present a complete and authoritative statement of the science in its most recent aspects, and will receive a deservedly warm welcome.

ACCORDING to a recent cablegram, a large canvas by Brouillet is expected to be the sensation at this year's Paris Salon. It represents Dr. Charcot giving a lesson at the "Salpêtrière" to his pupils and some invited guests. He stands at a table, one arm half extended toward the audience. His assistant, M. Babinski, stands near, holding a woman stricken with hysteria. The hospital nurse stands watching, ready to give any possible aid. Another realistic painting is by Gervex, representing Dr. Péan, in the hospital amphitheatre, giving a daily lesson in surgery. A female patient, under chloroform, lies on the table before him, an assistant surgeon kneeling beside her counting her pulse, while a Sister of Charity waits for the operation to begin.

REVIEWS.

PRINCIPLES OF HYGIENE FOR THE SCHOOL AND THE HOME, TOGETHER WITH SO MUCH OF ANATOMY AND PHYSIOLOGY AS IS NECESSARY TO THE CORRECT TEACHING OF THE SUBJECT. By EZRA M. HUNT, A.M., M.D., Sc.D. New York and Chicago: Ivison, Blakeman, Taylor & Co., 1886.

WHEN the new Drury Lane Theatre was erected upon the ashes of the old, an "Address without a Phœnix" was sufficiently rare,—as those of us who still read the writings of the brothers Smith can well testify. Nowadays, a school "Hygiene" without an intemperate discussion of the temperance problem is similarly rare. It is not impossible that the intemperate reformers do good. Fire must sometimes be fought with fire. But, as scientific men, we cannot give to their statements the welcome and endorsement which we gladly accord to a judicial exposition of the dangers attendant upon the use and abuse of stimulants and narcotics.

Dr. Hunt's book is of the latter class. The alcohol question receives the vigorous handling that it deserves, but the book is not subordinated to this theme.

The work throughout is abreast of the times; its statements are clear and terse. The discussion of the digestive process is, perhaps, rather too much condensed, but the chapters on Water in its relation to health, and on Heating and Ventilation are masterly.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, March 9, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D. IN THE CHAIR.

DR. J. SOLIS-COHEN read a paper on the

ADMINISTRATION OF GASEOUS ENEMATA IN PHTHISIS.

The object in view, he said, is to supply to the venous circulation an antiseptic, such as sulphuretted hydrogen, in sufficient doses to be effective; a result impossible when supplied directly to the arterial current, a plan which would poison the patient. Sulphuretted hydrogen inhaled in far less than sufficient doses would suffocate the patient; taken by the stomach, it would produce other serious results. Administered by the bowels, however, and entering the venous current already deteriorated by organic refuse, it is quickly eliminated by the respiratory tract, which thus becomes subjected to

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its beneficial local antiseptic effects without subjecting the system at large to injury, as when thrown into the arterial current. In other words, the parasite is killed, without killing the individual.

Its beneficial effects in phthisis are explained by the action of the gas on the suppurative and septic surfaces, and not by any influence on the bacillus tuberculosis; the consumption proper, the exhaustion, being due to the suppuration and to the consequent septicæmia, and not immediately to the bacillus, which, while it produces the destruction of tissue, does not produce the morbid phenomena. The method of administration utilizes the discovery announced by Bernard in 1857, that toxic material introduced into the economy through an organ at a distance from the arterial system could not penetrate into the arterial system because it is eliminated before that system can be reached. Volatile substances are eliminated by the pulmonary alveoli.

The antiseptic substance employed is preferably sulphuretted hydrogen. This is propelled by means of a current of carbonic acid. It is important that the carbonic acid be freshly made, and that the injection be made without any admixture of atmospheric air, the presence of which will cause griping.

The carbonic acid gas as evolved from the action of the dilute sulphuric acid upon sodium carbonate is collected in a rubber bag previously emptied of air by rolling it. This bag is then connected with a hand-ball compressor, by means of which the gas is propelled through natural sulphurous water in a sort of Wolfe bottle, driving off the sulphurous gas with it through a tube, the terminal extremity of which has been passed into the rectum. Within less than a minute the escape of the gas by the lungs can be detected in the breath.

The beneficial results obtained in pulmonary phthisis by Dr. Bergeon, and reported last July to the Académie des Sciences, have been confirmed by Prof. Cornil, in a communication last October, to the Académie de Médecine, by numbers of French physicians, and by Dr. Hughes Bennett, of Mentone. Bergeon stated that the patients he considered practically cured, had no more expectoration and only dry auscultatory signs of cicatrizing cavities, or other cicatricial results of old lesions. Some of them had become able to resume tolerably laborious employment, with full maintenance of the amelioration they had acquired.

In most patients, it is said, there is marked diminution of cough, expectoration, and night sweats within two or three days. Nevertheless, the trifling expectorations of those apparently practically cured, continued to contain bacilli. This fact may be taken both for an indication that the immediate danger in phthisis is less from the bacilli than from the septicæmia which they set up, and as an indication that this protective treatment, when successful, should not be discontinued until the general healthiness of the tissues is sufficiently restored to resist the further development and sustenance of the bacillus tuberculosis.

DR. WILLIAM OSLER said that recently, at the University Hospital, a patient very nearly expired after an injection of a mixture of carbon dioxide and sulphuretted hydrogen. He was not aware at the time that sulphuretted hydrogen, if given in sufficient quantities, is capable of producing poisonous effects even when taken by the rectum. He mentioned this accident, lest similar mistakes may arise. Evidently the amount of sulphuretted hydrogen which is given must be small. At the Biological Society, at Paris, some experiments were related, which showed that even a few cubic centimetres are sufficient to poison a good-sized dog. In the experiences which are related in French journals, the odor of sulphuretted hydrogen is readily observed in the breath, but he had not noticed this in any of the Blockley patients. This is an exceedingly interesting, not to say comical, method of treating phthisis, but it is too early to say what the results are likely to be. Certainly, however, in Dr. Bruen's hands, at the Philadelphia Hospital, they have been extremely good.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting March 17, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. T. MITCHELL PRUDDEN read a paper on

BACTERIA IN ICE AND THEIR RELATIONS TO DISEASE, WITH SPECIAL REFERENCE TO THE ICE SUPPLY OF NEW YORK—AN EXPERIMENTAL STUDY.

Our knowledge of the dangers of impure water, he said, had become much more precise since we had learned that many common and fatal diseases are caused by minute plants, called bacteria, which such water might contain, and as the questions relating to a pure ice and water supply are for the most part identical, he thought it well to call attention in the first place to the new methods of water analysis and the new facts which their use has elicited. Until recently, a considerable amount of organic matter, as determined by chemical examination, and particularly if this could be shown to be of animal origin, had usually been regarded as a sufficient evidence of its unfitness for drinking purposes, because it usually signified decay, putrefaction, or the presence of animal excretion. Organic water had been of late looked upon as indicative of the presence or action of bacteria; but chemical examination could determine only inferentially the presence of these organisms. In the new methods of research, however, it is no longer necessary to *infer* the presence of bacteria, but they can be actually seen, counted, and their species and action on the animal body definitely determined. The new method of water analysis, which has to do with its living contaminations, is called the biological analysis. This, and the older chemical method are in most cases supplementary; but, so far as a certain class of diseases, which may be transmitted by water, are concerned, such as typhoid fever and cholera, it is safe to say that the biological is by far the more important.

Having explained the technique of the biological analysis, he said that in the course of from two to four days the colonies of bacteria, each now containing thousands of the organisms, had become large enough to be readily visible to the naked eye or with the aid of a low magnifying power. It was only necessary now to count these colonies in order to know exactly how many living bacteria were present in the cubic centimetre of water used for analysis, because each visible colony was the result of the growth on the spot from a single in-

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visible bacterium, which was caught here when the gelatine of the culture medium solidified. In order to identify the species of the bacteria and test their effects upon animals, a little bit was taken from one of the colonies with a sterilized wire, and put into a fresh tube of nutrient gelatine, where it would grow until enough could be obtained for further experiments. In this manner we could get, growing in separate tubes, pure cultures of all the different species which had been growing side by side on the gelatine plate on which the water was, so to speak, planted.

It was always a matter of surprise to one unaccustomed to such a delicate mode of water testing to find what large and varying numbers of these living organisms ordinary water may contain. We usually congratulate ourselves that in New York, said Dr. Prudden, we have an especially good water supply, and this is in a certain sense true. But a series of 32 analyses of the Croton water, as it was delivered through one of the faucets at the College of Physicians and Surgeons on different days during the past five months, shows the lowest number of living bacteria to one cubic centimetre to be 57, and the highest 1950, while the average of the 32 analyses is 243. When the first accurate biological analysis was made it was supposed that any water which contained a large number of bacteria was unfit for drinking purposes, but as our knowledge had increased it became necessary that this view should be very materially modified; since, so far as is yet known, a large proportion of the bacteria which are everywhere so common and abundant are perfectly harmless. Their *rôle* is to tear down organized bodies into their simpler constituents, a small part of them being used for their own nutrition and growth, while the larger part is given up to other organisms for their life purposes. The bacteria are thus indispensable and omnipresent factors in the working out of the organic processes of nature. It still remains true, however, that a certain number of species, which can live in water, as well as elsewhere, can and do produce deadly diseases and are responsible for some of the most frightful epidemics.

When, then, we know the bacterial contents of a given specimen of water, we have still other things to learn before we can pronounce upon its salubrity. It is necessary to ascertain whether it has been stagnant; whether part of the bacteria are those at least relatively harmless bacteria (which live and proliferate to an enormous degree in pure water); and, above all, whether there has been any chance of sewage contamination. A great variety in the species of bacteria present in a water is rather indicative of sewage contamination, and our lack of knowledge concerning the larger proportion of all bacteria compels us to be most cautious regarding them; erring, if we must, on the side of safety. In a general way, it may be stated that water containing more than from 50 to 100 living bacteria to the cubic centimetre should not be used for drinking purposes without filtration or other mode of purification; and it should always be remembered that absolutely pure water contains no bacteria at all. In any case in which sewage contamination can be positively excluded, judging from the source and surroundings of the water supply, the limit of safety mentioned might, perhaps, be placed considerably higher.

Having remarked that all of these data concerning bacterial water contaminations and water analyzed applied equally to the problems which ice impurities present, Dr, Prudden went on to say that the biological analysis of ice is conducted in precisely the same way as that of water, except that the ice must be thoroughly cleansed and then melted. While the popular belief, that water in freezing purifies itself, has some foundation in fact, it is to be remembered that the bacteria are so minute that they may exist in water in enormous numbers without in the slightest degree impairing its clearness and transparency. The consideration of bacteria in ice is, in the light of modern methods of research, an almost untrodden field, and he had thought it well, therefore, to get some positive data about the action of low temperatures under conditions which we could control in the laboratory, to guide us in our interpretation of nature's processes carried on in a large scale and under varied conditions. With this purpose in view he had conducted a series of experiments on the effects of cold on pure cultures of six different species of bacteria when these were suspended in water. These experiments he described and then summarized their results in six tables. One of the species experimented upon was the bacillus of typhoid fever, and the result showed that while many of the individuals were destroyed, many still remained alive, even after prolonged freezing.

ALTERNATE FREEZING AND THAWING OF BACTERIA SUSPENDED IN WATER.

The experiments in general showed that a large reduction in the number of viable individuals occurred at the first freezing, while more gradual destruction went on as the low temperature was maintained. Subsequent experiments were made with results which are embodied in three additional tables, and from these it was seen that the typhoid bacilli, as well as other microbes experimented on, were soon exterminated after alternate freezings and thawings.

FREEZING OF NATURAL WATERS.

The examination of the water from a given pond or river, and the ice formed from it in the natural way, did not, even if the water was taken in winter, when the ice was forming, give a very accurate distinctive percentage, because the water beneath was always more or less in motion, and in both water and ice there was a very unequal distribution of the bacteria. Approximate accuracy might, however, be obtained by collecting water from various sources in winter, and, after determining from each sample the average number of bacteria in one cubic centimetre, comparing the results. This was done with water taken from Van Cortland Pond and from the Hudson and Croton Rivers, and Dr. Prudden summarized the results in a general way by saying that natural waters containing bacteria on being frozen and remaining so for a few days, may purify themselves by the destruction of as much as ninety per cent. of the bacteria. Furthermore, the number of bacteria is gradually reduced in the ice as time passes; but this reduction does not go on to the complete extinction of all species. He then proceeded to a consideration of the problems which our ice supply presents.

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SOURCES OF NEW YORK ICE.

The ice used in New York City, as well as to a certain extent in Brooklyn and Jersey City, is supplied almost entirely from these sources, viz.: the Hudson River, a few lakes and ponds adjacent to the Hudson or near the line of some of the suburban railways, and Maine. The Hudson constituted the principal source of supply, and the Maine supply was, as a rule, drawn upon only when the ice season in this region had been a poor one and the domestic stock ran low. The total storage capacity of the ice-houses along the banks of the Hudson reached the enormous amount of more than three million tons. Dr. Prudden then went on to speak in more or less detail of the various bodies of water from which the ice for New York is taken. In describing Rockland Lake, the ice-houses of which have a storage capacity of about 150,000 tons, he stated that the possibility that the drainage of a number of small dwellings near it might reach the lake without that thoroughness of soil filtration which a strict attention to hygiene demands, seemed worthy of consideration.

In regard to the Hudson River, he said that it must be borne in mind that this stream is in fact a great estuary of the sea, and that the water is at times brackish as far up as Poughkeepsie; while the influence of the tides is felt by the rise of more than a foot at Albany. The fall of the river from Albany to New York is so slight that at times the current at Albany is reversed, and runs northward for some hours. The river for a few miles below Albany is really a long narrow archipelago, so besprinkled is it with low islands of sedimentary origin. The main ice harvesting fields lie between Poughkeepsie and Troy, and at the upper part of this section is the city of Troy, emptying its eight million gallons of sewerage daily into the river, already charged with contributions from Cohoes and Lansingburgh, to say nothing of the impurities brought by the Mohawk from the west. A few miles below Troy lies Albany, with over 90,000 inhabitants and an efficient sewage system pouring directly into the river. Having spoken of other sources of pollution, he stated that the Hudson just below Albany had been shown to consist of about 1100 parts of dirty river water from Troy and 1 part of Albany sewage. "But," he went on to say, "if one should require more proof of the filthy condition of the Hudson just below Albany, he has only to stand on some summer or autumn day, when the tide is at the ebb, on the shores of the so-called Albany basin, a walled inclosure of some thirty acres made for the purpose of increasing the city dockage, and into which fifteen sewers empty, carrying the waste of over thirty thousand people. Under these circumstances the observer will certainly be rewarded with both ocular and olfactory evidence of a most convincing nature. Yet within sight of the walls of the Albany basin, down the stream, stands one of the houses, with its sewage-laden ice-fields, in which this delectable harvest is stored for the comfort of a considerable number of New Yorkers. It was from this region that the ice actually being distributed in an outlying district of this city, was found to contain from 20,000 to 50,000 living bacteria to the cubic centimetre—that is to about one-third of a teaspoonful." Taking the Hudson River ice altogether, it was found that about two-thirds were cut within thirty miles of Albany, and nearly one-fourth within twelve miles.

Having referred to certain other unfavorable conditions of the upper Hudson, he said that, on the other hand, it should not be forgotten that in the comparatively still water behind the islands and dykes there was given tolerable facility for sedimentation of the bacteria, by which means, as experiments showed, a considerable proportion of them might settle down from the upper strata of the water. It was this latter consideration which warned us against an unqualified condemnation of the Hudson River water for ice purposes, since only careful series of experiments could show at what distance below a source of pollution the water might have so far deposited its bacteria (if it did so to any considerable degree) as to render it fit for ice harvesting purposes. In the meantime we must look at the ice itself, and see to what extent bacterial contaminations actually exist in the product from various parts of the river.

Dr. Prudden has made nearly three hundred complete analyses of ice taken at different times from the Hudson, and from the ponds and lakes, and taking the results of all these analyses, he finds that the average number of living bacteria for one cubic centimetre is 2033. He also found that different parts of the same block of ice may contain vastly different quantities of bacteria. In his series of ice analyses the ice was carefully grouped into two classes: first, clear ice, or that which contained but few scattered bubbles, and, second, snow ice and that with very bubbly streaks. Having exhibited charts of his analyses of the Hudson river ice, he said that it was evident from these that by natural agencies the water of the river is freed to a certain degree from bacteria after running for some distance. But the ice did not, as one might expect, get freer and freer from bacteria as the distance from Albany increased, but from six to fifty miles below Albany, with unimportant local fluctuations, remained very nearly the same. A very much more extended series of experiments, he thought, would be necessary before he could determine with any very great degree of accuracy how far the river has to run below a source of sewage pollution in order that the water may by freezing and other natural agencies free itself to a proper degree from its bacterial contaminations, or if it does so at all.

In a series of analyses of the two forms of ice in the same cake, tabulated for this purpose, he found that on the average the snow ice contained about seventeen times as many bacteria as the clear ice. The very bubbly streaks contained, as a rule, many more bacteria than the adjacent clear ice, but still not as many as the snow ice. It is extremely probable that the excess of bacteria in the ordinary snow ice is due to the washing down of material from the shores during rains, or the settling of organisms from the air. The bacterial excess in the very bubbly streaks might perhaps be explained by the fact that certain species of bacteria are capable of making rapid movements in water, and are also great lovers of air. It was possible, therefore, that when the air bubbles collected underneath the ice, these made their way through the water toward them, and got caught there when the water froze. The average number of bacteria in ice from all sources taken together, he went on to show, was far beyond the general

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standard which even a moderate degree of purity would allow.

There now remained to consider the most difficult, and at the same time the most important part of the subject, viz., the interpretation of the results obtained, and the suggestion of its practical lessons. The natural situation of the ponds and lakes was good, and evident sources of contamination with sewage and excrementitious material could be largely excluded. As regards the lake and pond ice, then, it could be concluded that, although the product from some of them contained a larger number of living bacteria than was consistent with the highest hygienic standard, the conditions could be readily changed, so as to render them quite unimpeachable; while in some instances the ice, so far as Dr. Prudden's analyses showed, was well within the ordinary standards of excellence.

The Hudson River, on the other hand, stands on an entirely different basis. Now, given the Hudson River ice as we find it, and knowing what we do of the character of the stream, what actual danger have we to fear, he asked, from the use of the ice for drinking purposes? A considerable number of the bacteria which it contains are undoubtedly the relatively or absolutely harmless species which may exist in any natural river or spring water; but a large number might with equal certainty be assumed to originate from animal excreta. Here again it was scarcely to be doubted, although not yet demonstrated, that a considerable proportion of the bacteria existing in sewage, and coming from human and other animal excreta, and the varied putrefying fluids which form a prominent ingredient in the waste of populous towns, might not be positively dangerous if taken into the body in moderate quantities in drinking water. On the other hand, in every large town, like Albany, and in smaller towns in lesser degree, there is a considerable number of bacteria which are the cause of serious disease, more or less constantly passing into the sewers, and here the use to which this diluted sewage should be put, involved the interests of the public health.

There are some varieties of diarrhœal disturbance, sometimes severe and sometimes mild, which often seemed to depend upon impure water or ice; but whether they are occasioned by sewage or other bacteria, or by organic matter, or by both, is not yet certain, so that this class of cases can be left out of view. Fortunately, cholera and anthrax, both bacterial diseases transmittable by drinking water, are not ordinarily present in the sewage of the region under consideration; so that these diseases, although they should not be ignored by those having the public health in charge, did not fall within the scope of the present study. But there are two very common and very important bacterial diseases which are almost constantly present in large towns like Albany and Troy, and frequent enough in villages like those which lie along the upper Hudson. These are typhoid fever and the affections associated with acute suppuration, and the so-called blood-poisoning from wounds, or pyæmia. Now it is unfortunately true, as Dr. Prudden's studies had shown, that the bacteria causing these two forms of disease are markedly resistant to the temperature at which ice forms. The most important of these is the typhoid bacillus. For the past three years the number of deaths from typhoid fever in Albany (the health records did not show the number of cases), during the ice-forming and harvesting months—that is, from December to March—had averaged about sixteen for each year. Reckoning the death-rate at thirty per cent. (which was unusually high), there would be each year about fifty cases of typhoid fever from whom excreta would pass directly into the Hudson River from Albany alone during the ice-forming season. He had been informed that in Albany, as in most American towns, both in hospital and private practice, there was no systematic disinfection of the typhoid discharges. The bacteria of typhoid fever had been repeatedly shown to be capable of living for a considerable time in water, and according to Frankland, and other authorities, they might even proliferate in water. Dr. Prudden had also found, as had been stated, that when frozen up in ice, a certain proportion of these bacilli may live on for long periods, ready, when thawed out and placed under favorable conditions, to go on growing or proliferating just as before their hibernation.

Here, then, as it seemed to him, was the positive source of danger in the use of the Hudson River ice directly for drinking purposes, without some form of filtration, at least until it could be ascertained at what distance, if at all, below Albany and other towns whose sewage drains into the river near the ice fields, a safe degree of bacterial purification of the water by natural means might have occurred. The typhoid bacillus had not been detected in the Hudson River ice, and to find it, even though present in considerable numbers, in its mixture with other species and in the large dilution which exists, presented very great practical difficulties. It had been detected in several instances in water suspected to be the cause of outbreaks of typhoid fever, but the conditions for its discovery were much more favorable than in the present case.

If, on the other hand, we looked at the cases of typhoid fever as they are constantly occurring in New York and the adjacent towns in which the Hudson River ice is used, he did not find, and we should not expect to find, any marked excess of typhoid fever among those who habitually use ice for drinking purposes, over those who do not. This was because the sanitary surroundings of the classes which use little ice are so much less favorable, as a rule, than those of the habitual ice consumers that other sources of infection, equally or even more efficient, would abundantly cover any difference in the number of cases in the two classes that might otherwise be noticeable. Whether infection through impure ice is of frequent or infrequent occurrence is not now known. That it is not, however, so important a factor in the transmission of the disease as to render the typhoid fever statistics of New York worse than those of other towns whose residents use clearer ice, is certain. But there was a considerable number of cases of typhoid fever in which the most painstaking examination of the sanitary surroundings of the victims, and their personal contacts, failed entirely to account for the origin of the disease; and some of these might well be cases of ice poisoning from the typhoid bacillus.

It is to be remembered in considering this, as all other bacterial diseases, that the bacteria themselves are only one factor in determining the disease. There is to be taken into this account also the number of

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the bacteria—that is, the size of the dose—and the conditions of prediposition or susceptibility of the individual. Unfortunately, however, we know nothing about the number of typhoid bacilli necessary to induce the disease in man, and we are nearly equally ignorant concerning the nature of the predisposing conditions. So, then, if we summed up what we really knew about the relation of Hudson River ice to typhoid fever, we could only say that it is certain that the ice from some parts of the river must contain the bacteria of typhoid fever, and that these may be taken into the system in a living condition with ice water. Whether the necessary relationship between the number of bacteria thus taken and the condition of predisposition of the individual occurred frequently or infrequently, or even occurred at all, we could not positively say; but the grave character of the disease should warn us against indifference and impress upon us the urgent necessity of the adoption of such measures as will secure the consumer against even the possibility of such infection.

With the bacteria of suppuration and pyæmia the case seemed much less serious, because of the very general antiseptic treatment of wounds now in vogue; but the fact that the staphylococcus pyogenes might be in the Hudson River ice in a living condition should not be lost sight of.

Finally, Dr. Prudden considered that practical measures, as these theories seemed to show, should be adopted in order to guard against a not only possible, but very probable, source of danger in the Hudson River ice. He would not leave out of sight the great and important private and corporate interests which are involved in the supply and consumption of ice; nor would he wish in any measure to suggest by these studies a curtailment in the consumption of ice, even for drinking purposes. The measures which might be adopted in view of the present condition of affairs were of two kinds; *first*, such as would come under the supervision of health officers, and, *second*, those which belonged in the province of the individual consumers.

In the first place, then, it would seem necessary that the State Board of Health, or some other authorized body, should be placed in charge of the ice harvesting fields, and, by a system of inspection not less strict than that which should exist in the case of the ordinary water supply, determine which, if any, of the sources of ice supply are so situated as to imperil the health of consumers of ice. In view of Dr. Prudden's investigations, this would appear to be comparatively simple in all cases except that of the Hudson River. Here it would be necessary to establish by a most thorough scientific examination the distances from all sources of sewage pollution at which it might be safely assumed that the water freed itself from bacterial and other impurities sufficiently to form safe ice.

It might in this way be possible to remove any chance of danger by permitting the questionable or bad ice to be sold only for cooling purposes, if such a classification were practicable, and thus not materially interfere with the interests of the ice companies. A compulsory system of disinfection of excreta in infectious diseases might be instituted, as it has been in other countries in which the purity of the water supply is under constant supervision.

As regards the precautions which the individual consumer might adopt, it was evident, from the facts that had been brought forward, that if he could be certain that his supply came only from the lakes or ponds, he would secure for himself a fair degree of immunity from danger. Remembering that the larger and more responsible ice companies did not, so far as he was aware, cut ice in the immediate vicinity of Albany, but at a considerable, and in most cases at a great distance below, the householder might eliminate to a large extent his hazard by finding out as accurately as possible just what part of the river his ice came from. Whatever the source of supply, however, the large excess of bacteria which in almost all cases the snow layer harbored, over transparent or sparsely bubbly ice, would render imperative the avoidance of snow ice for any but cooling purposes. Still, it is not to be forgotten that perfectly clear ice may contain very large numbers of living bacteria.

A variety of devices could be adopted in the use of ice for cooling drinking water, so as to avoid placing it in the water itself; or, recourse might be had to artificial ice, made from pure water, which, as abundant experience had shown, could be furnished at a cost not greatly exceeding that at which the natural ice was furnished. This artificial freezing of pure water is already done in some of the continental cities in which the natural ice contains large bacterial impurities.

From these studies Dr. Prudden said it would appear that we now know with tolerable certainty just what series of questions are to be answered, and what investigations made, in order to decide upon the safety of any given source of ice supply; but these detailed investigations could only be made under the sanction and direction of the public authorities.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, March 3, 1887.

THE PRESIDENT, THOMAS M. DRYSDALE, M.D., IN THE CHAIR.

DR. D. LONGAKER read a paper on the

TREATMENT OF LABOR IN CONTRACTED PELVES.

The most frequent forms of contracted pelves are the flattened and the generally contracted; in the former the conjugate diameters alone are shortened, and in the latter all are less than normal. The paper was limited to the consideration of those cases where the narrowing is moderate and not sufficient to render the birth of a living child impossible; this embraces flat pelves having a conjugate of three inches or a little less, and generally contracted pelves having a conjugate of at least three and one-third inches. He gave a description of the peculiarities of the flat non-rachitic pelvis, and the flat rachitic pelvis, and reported six cases.

He urged that it will be best to restrict version to cases in which there are other reasons for it than the mere existence of flattening; some of these being the presence of the occiput on the smaller side of an unequally contracted pelvis, the sagittal suture over the symphysis pubis, presentation of an ear, and prolapse of the cord. He extolled the axis-traction forceps in these cases and exhibited an instrument of his own devising, which he had used in two cases. He had no

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hesitation in applying the forceps high up in the uterus when the head is arrested at the brim of the pelvis, and cited fifteen cases of such application in proof of his opinion. After some remarks on estimation of the conjugate diameter, he concluded with the following propositions:

In the flat pelvis and in the flat rachitic pelvis decided degrees of disproportion at the brim may be overcome by the natural efforts when the head presents.

In the forceps, and especially in the axis-traction forceps, we have the means of extending still further the possibilities of successful delivery when the head is arrested at the brim.

The forceps, judiciously used, is a safe instrument for mother and child.

The existence of contraction of the pelvis in itself is no reason for preferring version.

In flat pelves with a conjugate diameter of not more than three and a fourth inches and not less than two and three-fourths inches, premature labor should be induced.

DR. HIRST differed from Dr. Longaker on two points: The propriety of always applying the forceps in flat pelves before the head has become engaged instead of turning and delivering the breech; and, on the propriety of applying the forceps over face and occiput in transverse positions of vertex presentations, as in this latter operation the biparietal diameter must be increased.

DR. H. A. KELLY agreed with Dr. Hirst. He considered the paper of Dr. Longaker's a very timely one, which in all its leading features he most heartily commended. It is certain that an intelligent use of the axis-traction principle is destined to revolutionize the treatment of labor in contracted pelves. In cases in which craniotomy has been the custom, axis-traction will save many lives. A few important rules should be borne in mind. First of all, Dr. Kelly would differ from the speaker most decidedly in one practice and lay down the rule that "axis-traction" cannot be applied to the head above the brim. There is no axis above the brim and any traction on the rod merely caused the head to rotate around its own axis, but can under no circumstances be efficient in inducing it to engage. Axis-traction applies to heads engaged in the pelvis. Again, the ordinary use of this principle should be to *assist the pains*. Further, it is important in using Tarnier's forceps of this model to attend constantly to keeping parallel the shanks of the prehensile blades and the proximal end of the traction rod.

If the handles of the forceps rise during a traction, and it is felt by the examining finger that the head has not really advanced, then either the head has rotated in consequence of an excentric grip or the forceps has slipped, and here lies the great difficulty of the Tarnier instrument. The frequency of this accident, together with some other considerations regarding the mechanical construction of the instrument have demonstrated, to my mind, the fact that it is only approximately axis-traction. He exhibited a pair of forceps with which he delivered a dwarfed woman two weeks ago of a full-sized living female child through a three inch conjugate. This pair of forceps was shown him first by Dr. Porak, of Hospital St. Louis, Paris; and he believed that by them he attained the most perfect axis-traction which has yet been devised. The principle is applied in a very simple manner to any long forceps. Each of the four blades of the spoon is perforated with a small oval hole as near the centre of the oval of the spoon as possible. Two long tapes are passed through the hole of one side, the four free ends are brought down under the forceps, and after their application, hang out at the vulva. These ends are brought through a hole at the extremity of a traction rod curved as ordinary traction rods, with the usual transverse handle at the outer extremity; this is then drawn up to the head and the ends of the tapes fastened on the rod at the apex of the angle where the vagina turns down into the perineal curve. The advantages of this forceps are many. 1st. The application is extremely simple. 2d. It can be applied to any forceps. The Tarnier can not be, as it is only suitable to narrow tubed instruments. 3d. The child's head is grasped by the centre of its figure owing to the position of the attachment of the tapes. 4th. This same factor renders unnecessary the screws which are so dangerous in Tarnier's forceps, as the traction does not tend to force the blades apart but approximates them. 5th. The perfectly movable connection between forceps and rod—*i. e.*, the tapes—allows the head to flex and follow the curve of the pelvic canal.

He had used Tarnier rods and the Pollet forceps on the same patient several times and his experience accords with that of Dr. Porak, where the Tarnier rods fail and the forceps slip, the Pollet forceps holds and works easily.

An interesting incident of a short time since shows well the comparative value of axis-traction. He described his Pollet forceps to a friend who has a large obstetric practice. He soon called him out with a note, "bring your French forceps." He found the head well engaged but wedged tight. He had made many well-directed vigorous efforts with his own forceps and finally gave up in despair, producing no effect. He applied the Pollet forceps and with a moderate traction on the rod the head moved gently and steadily until it came directly to the outlet without apparent effort.

DR. LONGAKER had not had time to read Dr. Winter's article in the original, *Zeitschrift für Geb.*, but gained his information from an editorial in THE MEDICAL NEWS, which stated that an expectant plan of treatment and forceps are advised for primiparæ and early version for multiparæ.

He still thinks the occipito-frontal application of the blades does not appreciably increase the biparietal and bitemporal diameters of the fœtal head. It may increase the vertical diameters as the cervico-bregmatic and sub-occipito-bregmatic. A simple experiment on the manikin of Budin demonstrates the truth of this proposition. A full term fœtus, stillborn, was placed in position at the brim, the sacrum being thrown forward so as to make the conjugate measure three inches. With the axis-traction forceps the relative disproportion between the head and the pelvis, which was considerable, was easily overcome. With blades having a sufficiently marked cephalic curve the compression need be but slight.

There seems to be some misconception as to what is meant by the head being at the brim of the pelvis. The head is at the brim until the greatest transverse

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diameter, the biparietal, has passed the plane of the superior strait. With a head entirely above the superior strait the use of any forceps would hardly be appropriate. If fixation of the head could not be secured, version would be the best measure.

He did not see how traction exerted by means of tapes could be more efficient than with stiff rods.

The fixation screw is a necessity, there being no free hand to make the necessary compression by the handles. Moreover, it is not objectionable. Continuous pressure is avoided by relaxing the pressure in the intervals. This was one of the chief objections urged by the late Albert H. Smith.

A little reflection and application of well-recognized principles would dictate the proper method of applying traction. Simpler axis-traction forceps have been devised by Bruns and by Braun.

As version is in almost universal favor in Germany and Vienna these instruments have little chance; they are scarcely used there.

DR. W. H. PARISH reported a

PORRO-MÜLLER OPERATION,

performed by Drs. O. H. Allis and W. H. Parish because of an impacted shoulder presentation. Mary L., æt. twenty-six years, of small stature, but good general health. When about six months pregnant she had been hooked by a cow and narrowly escaped a miscarriage. She reached full term and had been in labor seven days when Dr. Allis was telegraphed for. The membranes ruptured four hours after the pains began, on the sixth day the pains became more severe and the cord prolapsed; about the same time a hand protruded from the vagina. The child died about this time. Version was tried without and with anæsthesia but could not be effected. The child was evidently of large size, the patient was restless, exhausted, and with a pulse of 120 per minute. The pains were constant and the uterus was firmly contracted about the child. The patient's surroundings were unfavorable, the ignorance and poverty of the family rendered proper nursing impracticable. An offensive, sanious fluid was escaping from the uterus; the cervix was rigid and but slightly dilated. It seemed impossible to deliver the patient by either cephalic or podalic version, and the conclusion was made that evisceration was not advisable because there was every reason to believe that the uterus had done itself irreparable harm by reason of its prolonged retraction against the eminences of the child. The contusion incident to the retraction and the admission of atmospheric air over a period of seven days, with the character of the discharge, rendered it certain that gangrenous changes had been going on in the endometrium and placenta, and that septic inflammatory action of the uterine lymphatics had already begun. The patient was in a condition of exhaustion. Evisceration alone would not have sufficed to secure delivery, it would have been necessary to have bisected the child in the lumbar region and to have removed separately the lower and upper sections. The condition of the uterus and the small size of the pelvis would have rendered this procedure a lengthy and an exceedingly difficult one, and would have added additional serious injury to the uterine tissues. The removal of the child would have left a putrefying endometrium and septic lymphatics.

Dr. Parish felt certain the patient would die if thus delivered. All present thought Cæsarean section indicated. The operation was performed by Dr. Allis. The uterus was elevated from the abdomen and a rubber tubing was placed about the cervix securely controlling the hemorrhage. Escape of fluids from the uterus was guarded against by means of warm antiseptic pads adjusted about and over the abdominal incision. A vertical incision was then made and the child extracted without difficulty, the placenta was not in the line of incision and there was no hemorrhage. Two transverse pins were carried through the cervix and a constricting wire was substituted for the rubber tubing about the junction of the cervix with the body of the uterus. With the uterine body were removed also both broad ligaments and their contents. The uterine stump was secured externally by means of the transfixion pins, and wounds closed by carbolized silk sutures. Antiseptic measures were taken throughout the operation, but the spray was not used. Immediately after the operation the pulse was 130 per minute.

The patient died in forty-eight hours, apparently from heart failure.

DR. R. P. HARRIS remarked that the Cæsarean operation has been performed in the United States in cases of impaction of the fœtus in a transverse position, twelve times. In eleven cases the fœtus was dead. In the twelfth it was saved, but the operation was believed to have been uncalled for by a physician who performed laparotomy with success after the woman had ruptured her uterus, in her next labor. The pelvis had been computed to have a conjugate and a transverse diameter of three inches. In one other of the twelve cases the pelvis was deformed, and the woman saved. The arm was protruding in seven cases, five of which recovered. In two the shoulder presented, one saved; and in three the presenting part is not named. Of the twelve cases, nine, or seventy-five per cent., recovered. Of the three cases lost one was ninety-six hours in labor, three days in charge of a midwife; another was twenty-six hours under a midwife who had given ergot and ruptured the membranes; and the third had been long in labor, but time not stated. Her death was caused by fright and exhaustion; she rose from her bed to defend her mother against her husband who had come home drunk on the third day.

He knew of but one case of impaction in Europe, in which the Porro operation was performed, but in this the pelvis was deformed. The operation was by Fehling, of Stuttgart, and the woman was saved. Putridity of the fœtus may require the removal of the uterus in a case of impaction. One woman was saved without its removal in the United States after seven, and another after ten days of labor, by uterine suturing to prevent escape of fluid; but it is safer to remove the organ where there is danger of poisoning, and particularly where the patient appears to be already threatened with it. In the Porro case of Candido Ramello, of Turin, the woman had been six days in labor, the fœtus was putrid, and the mother in great danger of septicæmia. The removal of her uterus with its contents was followed by an improvement of her symptoms and she recovered.

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NEW YORK ACADEMY OF MEDICINE.

SECTION ON PRACTICE OF MEDICINE.

Stated Meeting, March 15, 1887.

THE CHAIRMAN, E. DARWIN HUDSON, JR., M.D., IN THE CHAIR.

DR. C. E. BILLINGTON read a paper on

LOCAL TREATMENT IN DIPHTHERIA.

Local and constitutional treatment in diphtheria, he said, are each of vital importance as the essential complement of the other. Having mentioned that on account of the magnitude of the subject he did not feel that he could do justice to both in the limits prescribed to him, he stated that he had selected the local treatment as being that in regard to which there is the greatest diversity of opinion in the profession, and then proceeded to inquire what are the objects rationally aimed at in the local treatment of diphtheria.

He, accordingly, spoke of the factors to be dealt with in this disease; referring first, to the entrance into the system of a specific poison or contagion, which in many cases seems to act by direct local implantation upon some portion of the air-passages. This naturally suggests the local use of antiseptics.

The second factor, he said, is inflammation. This, if preëxisting from other causes, is very apt to invite the disease. Inflammation is an essential constituent of diphtheria, and ceases only with the cessation of the disease itself. The therapeutical indications furnished by the inflammation are, *first*, the treatment of catarrhal trouble, and, *second*, the employment of the most active antiphlogistic remedies, local and general, in the hope of cutting short or modifying the course of the disease. There is also an important contraindication, viz., the avoidance of all local applications which have the effect of causing irritation of the parts.

The third factor is a membranous exudation. This, he thought, is probably an invariable element, though it varies very greatly in extent and in its characteristics in different cases. Besides acting as a local obstruction, the membranes have the effect of covering up the diphtheritic poison, thus preventing whatever antiseptic measures which might be resorted to from accomplishing their purpose properly, and permitting septic absorption to go on. The presence of diphtheritic membranes, however, is sometimes the lesser of two evils; the greater being the premature removal of the membrane, whether intentional or accidental. When this occurs, the general inflammatory action and the membranous exudation are both apt to become more marked than before. Indeed, the forcible separation of the membrane may be attended with very considerable danger. The destruction of the membrane by prompt caustics or the actual cautery has been repeatedly resorted to, in the hope of substituting a simple ulcer for the diphtheritic deposit; and undoubtedly this is the true indication present in cutaneous diphtheria. But this plan is difficult or impracticable as regards the mucous membrane of the air-passages; and the use of such agents has now been discarded by the great majority of the profession. Even if the rapid destruction of the membranes could be accomplished without setting up more active inflammation, Dr. Billington believed such a measure would be detrimental, since the membranes undoubtedly serve to protect the tissues beneath from external irritation. When the membrane is very superficial, it can be removed with but little danger; but when this is the case recovery is generally sure to take place anyway. In the severe cases, however, the sudden removal of the membrane would expose a raw and irritated surface, and the sequel would almost surely be an increased absorption of the diphtheritic poison.

The rational indications in regard to the membrane, are, first, to effect its gradual softening and thinning by the local use of non-irritating solvents; and, second, in exceptional cases, in which its prompt removal is necessary, to accomplish this by such means as will cause the least irritation. The true object, in treating diphtheria, Dr. Billington went on to say, is not so much to cure the disease as to bring the patient through it alive.

The fourth factor in the disease is the absorption of the poison, with its attendant evils. In the earlier stages of diphtheria the condition of the throat is not distinguishable from that existing in ordinary angina. The absorption of the poison begins with the exudation, and it seemed to him that the disease is at first probably a local one. Dr. Billington here referred to the series of cases reported by him in the papers read by him before the Academy in 1876 and 1880, in which the plan of local antiseptic treatment was carefully carried out. The result was that in a large number there was little or no evidence of constitutional disturbance; while the number of deaths from toxæmia was extremely small. As shown by his experience, nature is capable of tolerating and successfully eliminating a certain amount of the poison absorbed,

The fifth factor is the emanation of poison from those affected with the disease.

The indications of local treatment are:

(1) To subdue inflammation.

(2) To effect a gradual and superficial thinning and softening of the membranes.

(3) By antiseptic measures to minimize septic absorption.

Passing on to speak of the means by which these ends are to be accomplished, he said that, in the first place, the frequent swallowing of water, milk, or other bland fluid, has a good effect in washing the parts clean. Ice and iced beverages also have a beneficial effect upon the inflammation present. Of medicinal agents, tincture of the chloride of iron and chlorate of potassium have long been regarded by many as holding the first place. When employed with glycerine, in the proportion of one to eight, the tincture of iron is very grateful to the taste, and can be given every hour, with a little water. The chlorate of potassium may be employed in the following formula:

℞.—Potass. chlorat. . . . . gr. xl.
Glycerinæ . . . . . f℥ss.
Liquor calcis . . . . . f℥iiss.
Dose, a teaspoonful.

In certain cases the tincture of iron is found too irritating to the throat. While Dr. Billington regards this agent as of positive value, he does not think it essential to the successful treatment of diphtheria. There are other agents which may be employed in its

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place, and, among those to which he referred, benzoate of sodium and bromine. As to gargles, which are frequently recommended by writers, many patients are too young to use them at all, and even in the older ones they are wearisome and inefficient.

The use of the syringe is more generally applicable. Any ordinary syringe holding half an ounce or an ounce will answer, and warm water with common salt in solution is, perhaps, as good as anything else to employ with it. Still, the use of the syringe has its limitations and dangers. The pharynx, with its delicate mucous membrane, was never intended for rough treatment, and hence it is necessary to proceed with great gentleness. This method should never be practised when any of the membranes is partially detached. In nasal diphtheria the syringe has been so long in use that it is unnecessary to speak of its advantages; but here, also, it is necessary to use the greatest caution. The principal difficulty with it arises from the resistance of young children; but this will be found to vanish if proper care is taken. Dr. Billington here quoted from one of his papers a description of the method which he had found most serviceable for holding the child while the injections were being made. The fluid should be thrown in with sufficient force, and the injection kept up long enough, to cleanse thoroughly the passages. He thought that the physician should always use the syringe himself, to be sure that the procedure is properly performed, and he thought two or three times a day often enough to repeat it. More frequent resort to it only tends to exhaust the patient, and results in increased irritation of the parts. Some physicians are in the habit of repeating the injections as often as every hour; but, as a rule, he thought this was a grave mistake. The frequency should never exceed the tolerance of the patient.

Spraying, he went on to say possesses certain advantages in the fact that the method is gentle and unirritating. In nasal diphtheria, however, it is not of as much service as syringing. For this form of the disease Delano's or some other similar atomizer, is the most convenient, and care should be taken not to insert the nozzle too far into the nostril. As regards solvents for this membrane, lime water is of no service if it is necessary to secure a very rapid effect; but in general it is of positive therapeutical value by its gradual action. A simple formula is ten minims of carbolic acid to four ounces of lime water; which may be employed every half hour.

Lactic acid, pepsin, and other similar agents have often been recommended, but their practical value as solvents has not as yet been satisfactorily demonstrated. Trypsin and papayotin, however, have been used with good results, and the following formula for trypsin has been found useful:

℞.—Trypsin	gr. xv
Soda bicarb.	gr. v
Aquæ	f ℥jss

Papayotin is used in a five per cent. solution. Inhalations of vapors are often resorted to as adjuncts. It is to be remembered, however, that the vapor of lime water when heated is simply water, and that to get a vapor really charged with lime it is necessary to have slaking lime. Turpentine, eucalyptus, and other substances have also been employed in this way. As an escharotic, nitrate of silver is to be recommended on account of its superficial action. Tincture of the chloride of iron in the proportion of two to one and Monsell's solution are also of service in certain cases.

DR. A. JACOBI remarked that it had been proposed to treat diphtheria with the galvano-cautery, but this presupposed that the membranes are always within reach of this agent. Caustics are objectionable except when their action can be limited strictly to the affected tissues. Nasal diphtheria is very apt to prove fatal unless local treatment is resorted to at an early period. The treatment which he practises consists of repeated injections, kept up at short intervals both day and night, whether the glandular swelling is great or not. The whole procedure, including the syringing of both nostrils, can be accomplished in half a minute, but great care should be taken to do it properly. Lime water, boracic acid, carbolic acid, and bichloride of mercury, the latter in the proportion of one to ten thousand, are useful for this purpose. Spraying can often be alternated with the injections with advantage.

Dr. Jacobi said that he had formerly supposed that in order to have any effect upon bacteria it was necessary to use very powerful agents; but later investigations have shown that this is really not the case. While permanent irrigation of a three per cent. solution of carbolic acid is dangerous, Koch has shown that while they are not destroyed, the activity of bacteria is checked by a carbolic solution of a strength of only one to twelve hundred. It is his invariable practice to have the room constantly filled with the vapor of either turpentine or carbolic acid, or both; a tablespoonful of crude turpentine or a teaspoonful of carbolic acid being added from time to time to a pot of water heated at the fire-place, and care being taken that the vapor should not be allowed to escape up the chimney. It is better not to heat the water over gas, on account of the oxygen that is thus withdrawn from the atmosphere of the sick chamber.

(To be concluded.)

CORRESPONDENCE.

DEATH-RATE IN AMERICAN AND EUROPEAN LYING-IN HOSPITALS.

To the Editor of THE MEDICAL NEWS,

SIR: In the issue of March 5th of THE NEWS is found an article by Dr. Barton Cooke Hirst, on "The Death-rate of Lying-in Hospitals in the United States," in which he has taken the trouble to collect the statistics of thirty-four lying-in institutions in the United States for the six years 1880–85, and finds an average mortality of 2.59, and one of more than twice that in some of them. Then he compares this result with those obtained in institutions abroad, and finds great reason for dissatisfaction with what we have done in this direction, in this country.

If the publication of these tabulated statistics should have the effect of stirring up some institution that is thus exposed with a particularly bad record, and bring it to amend its ways, I can only hail Dr. Hirst as a welcome collaborator in a field in which I have been working for years. But in my opinion the plan of the paper

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is wrong, and some of its details give an entirely erroneous idea of what has been done in the way of improvement of lying-in hospitals in this country. I will only take the records attributed to the two largest institutions of the kind in the United States, namely the New York Maternity Hospital on Blackwell's Island, because I am Visiting Obstetric Surgeon to that hospital, and have initiated the new era there, and the Boston Lying-in Hospital, because Dr. William L. Richardson has publicly stated[1] that the marked improvement in the results obtained in that institution, was brought about by adopting many of the suggestions contained in my first paper on "Prevention of Puerperal Infection," published in the *Medical Record* of Dec. 29, 1883.

Dr. Hirst, in his table, quotes the New York Maternity with 2842 confinements, 2.92 per cent. deaths, and 1.82 per cent. deaths from sepsis, and the Boston Lying-in Hospital with 1599 confinements, 3.81 per cent. deaths, and 3.10 per cent. deaths from sepsis. Now it happens that the author for his statistics has just chosen six years, the first four of which were particularly bad and pressingly called for reform, and the last two of which represent the new treatment begun at the New York Maternity on the 1st of October, 1883, and adopted, immediately after it had been made known, in the Boston Lying-in Hospital. This gives as clear an idea of the real condition of these institutions as if a naturalist, instead of describing a rattlesnake and a blindworm, should strike a balance, and content himself with the description of an adder. Dr. Hirst seems to have had some misgiving in this respect, and in order to show that "an earnest effort toward improvement will accomplish much," he gives the death-rate by years "in two large hospitals." These two large hospitals are the Boston Lying-in Hospital, and the Philadelphia Almshouse. Of the New York Maternity, the largest lying-in institution in the country, which has more confinements than the two others together, he says nothing—and still it was this latter hospital which took the lead in the United States in showing that even in comparatively large institutions, drawing their patients from the very lowest layers of female society, delivery can be made as safe as in the palatial residence of rich and healthy virtue.

Dr. Richardson, in a paper on the "Use of Antiseptics in Obstetric Practice," published January, 1887, in the *Boston Medical and Surgical Journal*, has shown how the results obtained during the last three years, 1884–1886, in the Boston Lying-in Hospital and the New York Maternity Hospital are almost identical. The strange omission, in Dr. Hirst's paper, of the New York Maternity, in regard to improvements is so much more surprising, as I, at least three times, have called public attention to the fact. Beside the article in the *Record* more than three years ago, we have my paper on "Puerperal Diphtheria," read in 1885 before the American Gynecological Society, and finally, my *Guide in Antiseptic Midwifery*, published in 1886. By taking cognizance of these publications, either directly or by one of the numerous abstracts that have been made of them in the medical press of all parts of the country, Dr. Hirst would not only have seen that the improvement in obstetical practice he calls for has begun and advanced considerably, but likewise how the change was brought about, a circumstance to which there is not found the slightest allusion in his paper.

Beginning at the first date as Dr. Hirst's table, and going on till the end of last year, I find in the Maternity Hospital a record that, when properly divided in its two natural groups, contains a lesson that cannot fail to make an impression on any fair-minded man who is unfortunate enough to have a high rate of mortality in a lying-in institution entrusted to his care.

FIRST GROUP.

Year	Confinements.	Deaths.	Deaths from sepsis.
1880	149	8	5
1881	382	10	8
1882	431	14	9
1883	447	30	20
Total,	1409	62 (4.40 per cent.)	42 (2.98 per cent.)

SECOND GROUP.

Year.	Confinements.	Deaths.	Deaths from sepsis.
1884	522	8	4
1885	537	3	0
1886	446	5	1
Total,	1505	16 (1.06 per cent.)	5 (0.33 per cent.)

The great change in the management of the service was begun on October 1, 1883, and during the last three months of the year 102 women were confined without a single death, whereas during the preceding three months 133 women were confined, 15 of whom, or 11.20 per cent., died, and during the last month before the change was made 51 women were delivered, 10 of whom, or 19.6 per cent., died. The difference between the two groups would, therefore, be still greater if we draw the line between them at October 1, 1883, instead of January 1, 1884. Still, even as the groups are limited in order to conform with Dr. Hirst's table, we see that *our mortality from all causes has been brought down to less than one-fourth of what it used to be, and the deaths from sepsis even to one-ninth of what it had been during the preceding four years.*

How the change was brought about, it is not here the place to consider; those interested in it will find all the details in my above mentioned *Guide in Antiseptic Midwifery*.

How far this movement has spread I cannot tell; but I have reason to believe that the treatment has been adopted with immaterial modifications in very many places, Dr. Richardson, of Boston, Dr. Lusk, Dr. Clark Thomas, and Dr. Emily Blackwell, of this city, adopted it immediately in the institutions under their care, and by request from prominent obstetricians all over the States I have sent them specimens of my perineal pads. I should, therefore, not wonder if in many other of the institutions found in Dr. Hirst's list, a new era of safe delivery had begun. These statistics are unjust to our country, and give the reader the erroneous idea that they represent the present status of our lying-in institutions. Whoever will use the statistical method now in dealing with the question of lying-in hospitals, must first of all examine if and when true antiseptic treatment has been adopted in them, and compare the results obtained before and after that period.

Before concluding, I would like to say a word about the future. When Dr. Hirst says that "we should in every lying-in hospital strive, at least, to equal the results

[1] Trans. Amer. Gynecological Soc., vol. x. p. 114.

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obtained by Tarnier in 1884, when in the Maternitié he had 1000 successive accouchements with but a single death," I fully agree with him that we should strive, but as to the institution with which I am connected I am pretty sure we will never reach the goal. Maternity Hospital forming, as a matter of fact, only a department of Charity Hospital, in which all diseases and injuries are treated, and being under the special supervision of men largely engaged in general practice, there is always great danger of infection being brought to it by doctors, nurses, clergymen, helpers, and other officials. Then in the Maternity, of Paris, as in all European lying-in institutions, there are one man permanently at the head of the institution, and clinical assistants, who occupy their positions for years, and who often are themselves obstetricians. In the New York Maternity four men alternate as visiting obstetrical surgeons, and every six weeks we have a new house surgeon, whose whole experience consists in having been junior and senior assistant, six weeks in either capacity. Under such unfavorable circumstances, and with so divided a responsibility, it is very unlikely that Tarnier himself would obtain results similar to those he obtained in his securely secluded and scrupulously guarded Maternity of Paris.

I do not think that "our greater wealth, and the superior physical and mental condition of our populace, as compared with the peasantry of Europe," will help us any; nay, I incline to the opposite view. I do not admit that our women are physically stronger than a European peasant girl, quite the contrary; their greater wealth, and their higher mental development, make them much more delicate, and deprive them of that wonderful power of resistance which, in my opinion—of course, together with antiseptic precautions—renders possible the marvellous results obtained in several of the European lying-in hospitals.

H. J. GARRIGUES, M.D.,
Professor of Practical Obstetrics in the
N Y. Post-Graduate Medical School and Hospital.
NEW YORK, March 21, 1887

NEWS ITEMS.

REGULATIONS OF THE GEORGIA BOARD OF HEALTH REGARDING CADAVERA FOR DISSECTION.—After the usual regulations giving such material to Medical Colleges the following is added:

No body of a stranger or traveller dying suddenly in the State shall be so delivered, but buried at public expense.

Bodies are to be divided in proportion to the number of *bona fide* students.

After a body has been received *it must be embalmed and kept untouched by the knife for a period of sixty days, during which time any relative or person otherwise interested may claim it and have it delivered to him properly prepared for burial.* After this length of time, sixty days, the body, if not before claimed, may be used for dissection, and after use must be properly interred.

For the faithful carrying out of these provisions a bond of $5000 is required from each college.

It is made a felony, punishable by imprisonment for from one to ten years in the penitentiary, for any one to sell or buy such bodies, or to convey them out of the State for the purpose of selling. Robbing a grave, or receiving a body known to have been so disinterred is made liable to the same penalty.—*New Orleans Medical and Surgical Journal*, March, 1887.

PASTEUR'S INOCULATIONS IN THE LABORATORY OF CANTANI AT NAPLES.—In September, 1886, a regular service was established for the practice of Pasteur's treatment of hydrophobia. Up to January 17, 1887, 79 persons had been registered, of whom 7 had been bitten by non-rabid animals. 52 have been treated and discharged, 18 remain still under treatment. The rabidity of the animals which had bitten 18 of the patients treated and discharged, was proven by inoculation with preparations made from their tissues; in the cases of 34 of those discharged as cured the rabidity of the animal was attested by outside physicians.—*Deutsche medicinische Wochenschrift*, February 10, 1887.

VENT, NOT VENTILATION.—In the course of an address on "The Laws of Nature in Relation to Health," given before the Hertfordshire Natural History Society, Professor Attfield, F.R.S., in speaking of the prevention of infectious disease, said a possibly serious source of contamination of the air of towns was to be found in the delivery of foul vapors from certain of the gratings at our feet as we walked along the streets and roads. There was, he observed, a general impression—probably a right one—that we had gone too far in the matter of sewer-ventilation—a little too far in a wrong direction. Fifty and a hundred years ago certain fevers which decimated the inhabitants of our towns were said to be, and probably were, largely due to the emanations from open urban ditches and other collections of impurities. We had now filled up the unsightly conduits, got rid of pestilential accumulations, and had substituted closed pipes and drains. But now, under some fancy that these tubular channels needed ventilating, we adopted mechanical contrivances which often brought the noisome vapors to the feet of adults or children as they played near or perhaps actually peered into the grid-guarded caverns. True, the contents of the passages were not allowed to stagnate as in old days, but so far as we ventilated them—that is, washed them out with air—and brought that possibly pestilential air to the lungs of human beings, to that extent, Professor Attfield contended, we were making a retrograde movement toward the fever-breeding conditions of pre-sanitary times. To prevent the vapor-laden air being driven by great pressure within the drains past the water-traps of our homes into the rooms in which we lived, he would suggest some judiciously disposed vent-pipes with no such current of air through them as constituted true ventilation, kept clear by an annual or semi-annual inspection. There was no danger to be apprehended from the generation of poisonous gas in these sullied-water passages. Such small quantity of gas as would be present even in stagnant stuff would be harmless. Ground level gratings should be done away with altogether; what is required is vent, not ventilation.

CASTRATION OF CRIMINALS.—The following is the recommendation of an enthusiastic sociologist who proposes castration as a means of limiting crime. The

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good effects of this kind of punishment upon the criminal class would be fourfold:

1. No offspring with an inherited tendency to commit crime.

2. An added terror to the punishment inflicted for breaking the laws.

3. A gradual improvement in time of the morals of the public at large, and

4. An improvement in the disposition of the person operated upon.

WOMEN DENTISTS IN ENGLAND.—The Committee of the National Dental Hospital have resolved to admit registered female medical students to the practice of the hospital; moreover, we find upon looking through the *Dental Register*, which is issued by the Medical Council, the names of twenty-two women, sixteen of whom are practising in England, two in Scotland, and four in the colonies. All these are registered on the ground of being in practice before the passing of the Dentists' Act. The College of Surgeons of Edinburgh have also decided to admit women to the examination for the licence in dental surgery, but we believe, so far, none have applied. The question arises, Are women fit to be dentists? A great deal has been written and said recently about the ill effects of those occupations for women which necessitate long-continued standing, and how much worse it must be when to the standing is added the strained and cramped position necessitated in stopping, which takes up the greatest part of the time of the dentist of the present day. That the long-continued confined position is a severe strain is shown by the occasional occurrence of neuralgia of the anterior crural or external cutaneous nerves of the leg, which is known by the name of "the dentist's leg." We think that women must often fail in extracting teeth from sheer want of muscular power. Again, in mechanical ideas women are particularly wanting; a fact, perhaps, due to their training, but nevertheless a fact; and in what department of dentistry does not mechanics play a large part?—*Lancet*, February 26, 1887.

A HORN GROWING FROM THE HUMAN HEAD.—An interesting addition has just been made to the Museum of the Hôpital Saint Louis, in Paris, in the shape of a strong and solid horn, which has been surgically removed from the head of a woman residing at Hyères, in the Riviera. This appendage grew from the scalp, was twenty-one centimetres (eight inches) long, and in appearance and consistence resembles the horn of a goat. This deformity is rare, but not so much so as is generally imagined. Cloquet, the eminent anatomist, records a case; and Demarquay has collected fifty-nine cases. The late Sir Erasmus Wilson gives a very complete account of the deformity in the 27th volume of the *Transactions of the Royal Medical and Chirurgical Society*. Out of 90 cases mentioned therein 44 were in females, 39 in males, and the sex of 7 is unrecorded. In the *New York Medical Repository* of 1820 is described the case of a man from whose forehead grew a horn which had three branches and was fourteen inches in circumference. These growths have their origin in a diseased sebaceous gland: and their treatment is removal. It is necessary to destroy all remains of the offending sebaceous gland, or recurrence may happen. —*Dublin Medical Journal*, March, 1887.

THE ETIOLOGY OF FOGS.—MR. JOHN AITKEN'S theory of fogs is gaining credence, and it is certainly one that has much to recommend it. There can be no question that it covers the ground better than any other. As our readers are aware, Mr. Aitken attributes the production of mists, fogs, and rain to the presence of particles of solid matter in the atmosphere. Professor Tyndall was the first to demonstrate how the atmosphere could be filtered, and to show it in a comparatively pure state. Mr. Aitken is of opinion that water vapor clings to and condenses on these particles, either bringing them down as rain, or remaining suspended with them as mist or fog. Chloride of sodium derived from the sea is the most extensive fog producer, but sulphur is the common base of town fogs; and he suggests that it is well that it should be so, because the sulphur has an antiseptic effect on the stagnant air, and saves us from worse evils than fog. This is good news to the sufferers from an annoyance which, if the theory broached be true, cannot possibly be got rid of. There is no special cause of uneasiness as to the sulphur fogs, and, on the whole, they are blessings in thick disguise. We may therefore go on throwing our three hundred and forty-seven tons of sulphur in the air every winter's day in London, not only with impunity, but with something of a sanitary pride in the achievement, because, if we did not thus disinfect the stagnant atmosphere, matters might be worse with us than they are at present. All the same, if we strained our smoke a little so as to get rid of the dirty carbon, it would be more cleanly, and altogether better for us.—*Lancet*, February 26, 1887.

NOTES AND QUERIES.

STEATITE.

In THE MEDICAL NEWS of March 12th, on page 308, a formula for "A New Dentrifice," calls for steatite. What is the ingredient "steatite?" INQUIRER.

By steatite is probably meant what is known in this country as French chalk.—ED.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 15 TO MARCH 21, 1887.

GRAY, WM. W., *Captain and Assistant Surgeon.*—Leave of absence further extended two months. — *S. O. 62, A. G. O.*, March 17, 1887.

POINDEXTER, JEFFERSON D., *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered for temporary duty at U. S. Military Academy, West Point, N. Y., relieving Captain Richard W. Johnson, Assistant Surgeon, who will return to his proper station (Fort Adams, R. I.).—*S. O. 62, A. G. O.*, March 17, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 19, 1887.

PARKER, J. B., *First Surgeon.*—Ordered to the U. S. Steamer "Ossipee."

SIEGFRIED, C. A., *Second Surgeon.*—Ordered to Baltimore, Md., on special duty.

HUGG, JOSEPH, *Third Surgeon.*—Placed on retired list, March 17, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, APRIL 2, 1887. No. 14.

ORIGINAL LECTURES.

THE TREATMENT OF AFFECTIONS OF THE RESPIRATORY PASSAGES AND OF BLOOD-POISONINGS BY GASEOUS ENEMATA.

A Clinical Demonstration before the members of the Philadelphia County Medical Society, at the German Hospital of Philadelphia, March 30, 1887.

BY J. SOLIS-COHEN, M.D.,
PRESIDENT OF THE SOCIETY.

IT is now some four years since Dr. L. Bergeon, lately Professor in the Medical School of Lyons, commenced a series of experiments in the treatment of pulmonary consumption, by injections of hydrogen sulphide in small quantities, propelled by currents of recently prepared carbon dioxide (carbonic acid gas of the old nomenclature). On the 12th of July of last year, he communicated his results to the Académie des Sciences,[1] and on the 20th of August to the Congress of the French Association for the Advancement of Sciences. On the 19th of October, Professor Cornil read a paper on the subject before the Parisian Academy of Medicine.[2] The beneficial results claimed therein have been confirmed by a number of French physicians, and have been favorably commented on by Dr. J. Henry Bennet, of Paris. A letter from Dr. Bennett in the *British Medical Journal* for December 18, 1886, so strongly impressed me that I wrote to Paris at once for an apparatus, having previously procured a pamphlet on the subject by his pupil Dr. V. Morel, of Lyons, who devised the apparatus which will be used before you; and from whose pamphlet[3] I have obtained most of the information that I propose to communicate—much of it in his own phraseology.

Mr. Kyner, of the Polyclinic, has made for me and for some of my friends, a number of apparatus imitated from this one of Morel, which answer just as well, and which can be procured for $10, less than one-half the cost of the imported one.

I have them in use in this hospital, in St. Joseph's Hospital, in the Home for Consumptives, in the Hospital of the Polyclinic, and in private practice. While unprepared, at this early date, to express a positive opinion as to the value of the method in curing consumption, I do not hesitate to state that sufficient evidence exists to demonstrate its value as a legitimate therapeutic measure; and I have invited you to a clinical demonstration because it is of importance that those of you who have not had access to the original sources of information should see how the administrations are made, in order that you should not submit yourselves to unnecessary disappointment should you feel disposed to give the method a trial, as I believe you should do. As you will see, the process is simple, but requires some precautions which necessitate the presence of the medical attendant at the first few administrations.

The principle upon which the treatment is based is that the disastrous results of pulmonary tuberculosis are due to septicæmia set up by absorption of the noxious products of suppuration in ulcerous lesions in contact with the atmospheric air; and that repeated prolonged bathings of the suppurating surfaces with a safe antiseptic agent, controls the suppuration and gives the lesions an opportunity to undergo cicatrization. When an attempt is made to administer such an agent by inhalation, the quantity required to produce the desired effect is so large that it is poisonous to the individual. The same may be said of administrations by the stomach, or by the subcutaneous connective tissue. Dr. Bergeon, reasoning on some experiments reported by Claude Bernard in 1857,[1] has found that certain antiseptic agents, of which he has found hydrogen sulphide the best, can be administered in sufficient quantities by the rectum with impunity, provided that care is taken not to introduce too much at a time. Claude Bernard demonstrated that when a toxic or medicinal agent is introduced into an organ at a distance from the arterial system—the digestive tube, for example—it could not penetrate into the arterial system because it becomes eliminated before it can reach that system. It has to traverse the portal system, the liver, the hepatic veins, and the pulmonary tissue; during which transit it may be eliminated in the liver by the bile, or, if volatile, in the lungs by exhalation. To demonstrate this point, Bernard rapidly poisoned a bird by enclosing it in a bell glass containing hydrogen sulphide; and then he injected a syringeful of the gas into the veins of a dog with impunity; and, with like impunity, a solution saturated with hydrogen sulphide into the rectum of a dog. In both these instances the gas was detected in elimination within a few seconds by blackening a paper saturated with plumbic acetate and held before the muzzle of the animal, and elimination had ceased at the end of five minutes. Hence he came to the conclusion that this substance could be safely introduced into the digestive tube or into the veins, provided care be taken not to introduce too great a quantity at a time.

The first experiments of Dr. Bergeon were made on animals with chlorine, turpentine, ether, ammonia, and bromine; but these agents had to be abandoned because they soon produced a violent inflammation of the rectum, and even points of sphacelus in the mucous membrane. On the other hand, a mixture of carbon dioxide and sulphuretted hydrogen was thoroughly tolerated when these two gases were pure and completely deprived of admixture with atmospheric air. In their

[1] Comptes rendus, July 12, p. 176.
[2] Bull. de l'acad., 2 me. sér. xvi.
[3] Nouveau traitement des affections des Voies Respiratoires et des Intoxications du Sang par les injections gazeuses, d'après la Méthode du DR. L. BERGEON. Paris, 1886.

[1] Leçons sur les substances toxiques et médicamenteuses.

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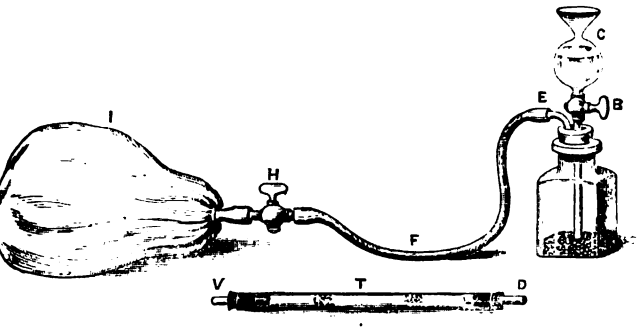
union, the carbon dioxide plays somewhat the part of an inert agent, and attenuates the irritant properties of the hydrogen sulphide. Sulphur is well known as a powerful microbicide long recommended in pulmonary disease. Carbonic acid gas is likewise rapidly absorbed by the venous system, and rapidly eliminated by the lungs, provided it is injected slowly and in small quantity. The good effects of carbonic acid gas in pulmonary phthisis, in asthma, and in other affections, have long been known to the profession, as I had occasion to refer to it some twenty years ago in the first edition of my little *Treatise on Inhalation*, and in which I referred, likewise, to some experiments made by Dr. James Collins and myself. In addition to this, the anæsthetic effect of carbonic acid gas may have some influence in preventing colic of the intestine in the introduction of the gas, and in subduing irritation in the pulmonary tract in its elimination. Those of you who, like myself, have been practising medicine in Philadelphia some twenty-five years or more, may remember the experiments as to the anæsthetic effects of carbonic acid gas made by the late Dr. Demmé, at that time Demonstrator of Anatomy in the Pennsylvania Medical College.

Dr. Morel's apparatus for administering gaseous enemata, is based on the principle that a current of carbon dioxide passing over certain gaseous or volatile substances produces a disassociation of the gaseous elements, and drives them forward with it. It is necessary to produce a pure carbon dioxide; and then to pass it through a medicated liquid or over a volatile substance, and to force this gaseous combination into the intestine without permitting any reflux into the reservoir of carbon dioxide.

The carbon dioxide is prepared by dropping a solution of dilute sulphuric acid (200 grammes of sulphuric acid to the litre of water) on sodium bicarbonate. Chlorohydric acid was used in the earlier experiments, but a portion always escaped with the carbon dioxide, and produced irritation of the rectum and kidneys.

FIG. 1.



Carbon dioxide generator and reservoir.

Glass tube, containing volatile medicament between two tampons of cotton.

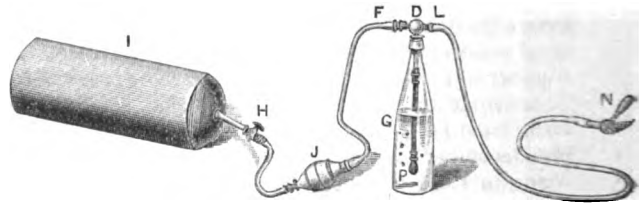
T. Medicament.

V. D. Connections.

The apparatus for generating the carbon dioxide (Fig. 1) consists of a square bottle in which three tablespoonfuls of sodium bicarbonate are placed. The bottle is hermetically closed by a rubber cork with two apertures, through one of which a glass tube extends to the bottom of the bottle, the upper portion (C) being expanded into a funnel and reservoir for the dilute sulphuric acid, beneath which is a glass stopcock (B) to regulate the descent of the liquid. The second aperture in the cork is filled with a curved glass tube (E) for the escape of the gas, and this exit tube is prolonged by a section of rubber tubing (F) for attachment to a rubber bag (I) of six litres capacity, in which the carbonic acid gas is to be collected. The mouth of this bag is furnished with a stopcock (H). The sodium bicarbonate being placed in the bottle, the cork is inserted, and the stopcock of the sulphuric acid reservoir is closed. This reservoir is then filled with the dilute sulphuric acid, say four ounces, and the stopcock is turned so as to allow the acid to drip on the soda. The carbonic acid gas is evolved immediately, the activity of the disengagement being controlled by the stopcock. A little gas is allowed to escape into the atmosphere, so as to drive off the atmospheric air in the bottle. Meanwhile the reservoir is rolled tightly so as to drive out all the air it contains, as far as possible, and is then attached to the exit tube for the gas and allowed to become filled with the carbonic acid. It is then removed and its stopcock is closed. It must be removed before the stopcock is turned, in order that pent-up gas in the bottle shall not break the apparatus. This is one of the points to which the physician must direct the attention of his nurse, before entrusting the patient to the attendant. Another point upon which stress must be distinctly laid, is the rolling of the bag to prevent retention of atmospheric air.

The gas is now ready for use. The reservoir (I) is

FIG. 2.



attached to a handball aspirator (J) with check valves at each end (Fig. 2). This is attached to a metallic T tube (D) passing through a cork which is intended to be placed in the neck of a bottle containing the medicated solution, preferably a highly charged natural sulphur water. The vertical portion of the tube is furnished with a double valve (P) to prevent aspiration of the liquid through which the carbonic acid gas bubbles, and contains an orifice at top for the escape of the gas into the distal horizontal branch, to which is attached a tube (L) connected with a nozzle (N) for introduction into the rectum. As this tube could not be made here in time to supply me with the number of instruments I required, Mr. Kyner, Superintendent of the Polyclinic, has imitated the contrivance at my suggestion by two glass tubes placed in the cork just as in the cork of a modified Wolff bottle; the longer tube being supplied with a valve to prevent regurgitation. It answers equally well with the original. This T branch is placed in a bottle three-fourths filled with the sulphurous water—in this instance the Red Sulphur Spring water, of Virginia—and the aspirator is worked two or three times to drive out the atmospheric air in the bottle, another point to which the physician must emphatically direct

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the attention of his nurse. The nozzle is then inserted into the rectum of the recumbent patient and the injection made slowly. All clothing must be loose. With the hand on the abdomen, the amount of distention of the colon is noted, and when this is marked, or when pain is complained of, the process is suspended until absorption takes place, as manifested by relaxation of the tension; and then the process is resumed. Fifteen to twenty minutes are consumed in the process of driving the six litres of carbon dioxide through the sulphur water. The sulphur salt—*e. g.*, sodium sulphide—is decomposed, hydrogen sulphide being formed, a portion of the carbon dioxide taken up to form sodium carbonates.

The only modification of the process I have permitted myself (for I deem it due in justice to Dr. Bergeon and Dr. Morel to test their method of administering the gas in their own way) is to place the mineral water bottle in a bath of warm water, which renders the injection more grateful. Within four minutes, sometimes within one, the sulphuretted hydrogen can be perceived in the breath, and be detected by paper saturated with plumbic acetate. It is prudent to have a bed-pan at hand in case there should be a call to stool. The injection should not be made upon the full stomach. This may produce emesis, it is said. You want all the room possible in the abdomen to prevent pressure upon a distended stomach and upon the diaphragm.

Three or four hours after a meal, or just before one, is the best time for injection. Two injections are given daily. I have found three hours after breakfast and three hours after supper the best periods. My patients have slept better after an injection just before bedtime, than after one, three or four hours after the midday meal.

At the first injections but half the contents of the reservoir of carbonic acid should be used, so that the parts and the system may be gradually accustomed to the process.

If the bottle of sulphurous water remain strongly impregnated after the injection, it may be tightly corked for use a second time. It is not necessary to have the bowels moved before an injection. Hæmoptysis and the presence of the menstrual period do not contraindicate the process. Indeed, Dr. Bergeon has seen amenorrhœa relieved during this treatment, even when that condition had failed to yield to the ordinary methods of treatment for that special condition.

When the pulmonary lesions are extensive, and, in consequence, elimination of the gas takes place slowly, the injections must be made very slowly, or they will produce sensations of fulness in the thorax and in the abdomen.

Now, as to therapeutic results. All published observations recount rapid amelioration of the suppurative phenomena; a marked diminution in cough, expectoration, dyspnœa, and night-sweats, being noted within two or three days. Similar prompt improvement, with reduction of temperature, has been noted in some of my own cases, not in all. Some of his more than 200 patients Dr. Bergeon considers cured. These, he states, no longer expectorate, and present no other stethoscopic evidences than the dry sounds due to cicatrized or cicatrizing cavities, or to cicatricial bands consecutive to old lesions. Some of them have been able to resume laborious occupations, and to ascend several flights of stairs many times a day without injury to their respiratory apparatus, or loss of the ameliorated condition which had been secured. Some who considered themselves cured at the end of a few weeks, abandoned treatment, despite the advice of Dr. Bergeon, and underwent recurrence. It is, therefore, important that the treatment should be continued for some months, until all the pulmonary lesions have been cured, lest incompletely cicatrized surfaces undergo suppuration afresh, and reproduce septicæmia. They should be renewed from time to time, even after apparent cure, and especially upon any reappearance of cough, expectoration, fever, or emaciation.

Not only are pulmonary lesions said to be cured by these enemata, but pharyngeal and laryngeal tuberculous ulcerations are said to undergo cure likewise, and that without any topical applications whatever, simply from the contact of the gas in its elimination from the lungs.

Of the cases treated under my own supervision I have as yet little positive to state. With a single exception, they have done quite well so far, and some of them are very pronounced cases—cases that I have had no hope of benefiting very greatly by any treatment with which I am more familiar. One of my patients insists that she is well, but she is not. Some of these cases are here for the purpose of receiving the treatment in your presence. They will answer for themselves that they are better in several ways. Hope of recovery has much to do with this, but not all. I went through a similar experience more than twenty years ago with inhalations of oxygen in phthisis. Hope buoyed the patients up until they found that oxygen had not the power of curing them, and then some of them, I fear, sank all the sooner for the disappointment. In the present instance the prospect is better, the treatment being more in accord with scientific principles, despite the awkwardness of the method. Try it, gentlemen, and within a few months Philadelphia will be able to prove whether this treatment is to be regarded as a novelty of the moment, or whether it has the therapeutic value that has been claimed for it. In the one instance, it is hardly to be supposed that your patients will have been injured; in the other, they will have had all the advantage of an early resort to a beneficial agent.

Should it be desired to administer some volatile medicament, as iodoform, carbon sulphide, eucalyptol, or the like, the bottle of mineral water is replaced by a bottle of common or distilled water, and between the T-tube and the injection-pipe a glass tube is inserted, in which the volatile substance has been introduced between two tampons of cotton. (Fig. 1, V, T, D.)

In addition to pulmonary phthisis, the following diseases are said to be usefully treated by this method, the therapeutic principle being the same in all of them: asthma, whooping-cough, bronchitis, pulmonary catarrh, typhoid fever, the eruptive fevers, puerperal fever, and general septicæmia. If this be true, the list can be extended, as stated by Dr. Morel. The gas acts on the mass of infected blood in the right cavities of the heart, and upon its entire transit through the ramifications of the pulmonary artery, so that the venous blood is disinfected in its course to the pulmonary alveoli and reënters the branches of the pulmonary veins in a purer condition.

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ORIGINAL ARTICLES.

THE TREATMENT OF PULMONARY DISEASES BY GASEOUS ENEMATA.

A PRELIMINARY REPORT.

BY EDWARD T. BRUEN, M.D.,

ASST. PROF. PHYSICAL DIAGNOSIS, UNIVERSITY OF PENNSYLVANIA, AND ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL.

IN the Philadelphia Hospital for the past seven weeks, the treatment of various forms of pulmonary disorders by the use of carbonic acid gas impregnated with sulphuretted hydrogen has been practised, according to the plan inaugurated by Dr. Bergeon, of Lyons, and described by Bennett.[1] In carrying out the treatment upon a considerable number of cases, much care and attention to detail have been necessary. Dr. McLaughlin, Resident Physician-in-Chief of the hospital, and Dr. Taylor, the Resident Physician in charge of my wards, have devoted a large share of their time to secure the proper administration of the gas, and owing to their valuable assistance it has been possible to give the attention necessary to a careful trial of the treatment.

The twenty-five cases of phthisis chosen on which to make a trial of the gas, included mostly patients suffering from advanced lesions, nearly all associated with cavities, marked bronchial catarrh, and some laryngeal lesions. At this time we are engaged in making a series of critical observations in reference to many essential features bearing upon the permanent value of the treatment, such as the best mode and frequency of the administration of the gas, the quantity and quality to be employed, and the effect upon the sputa, including the bacillus of tuberculosis. Our investigations into these subjects are still in progress; moreover, time is necessary to secure a proper estimate of the permanent beneficial effects of the treatment upon the lesions in the lungs. This report is, therefore, preliminary in character, and designed simply to record the results thus far secured.

The histories of the cases under treatment have shown that the element of suppuration, as it occurs in the pulmonary cavities, and in the bronchial passages, has been positively and promptly antagonized. The temperature has been reduced in a few days, and within two weeks has frequently been brought to a normal point. In grave cases with advanced pulmonary lesions, the temperature has continued to rise a degree or so above the normal standard, but during the period of treatment in more than twenty cases, the temperature chart has always been positively modified.

Together with the reduction in temperature has followed the cessation of night-sweats in most instances, and in all, this symptom has been markedly lessened. In cases in which evidences of bronchial catarrh have been present, such as râles, and copious muco-purulent expectoration, the râles have disappeared, or have been decidedly decreased, and in nearly all instances the digestive system has been favorably affected, the tongue has become clean and natural, the appetite has increased, and also the ability to assimilate and appropriate food.

In most cases the gain in weight has been progressive and considerable, and the nervous symptoms incident to phthisis decidedly influenced for the better, and a more cheerful disposition secured. The immediate effect of the introduction of the gas upon the pulse, has been to lessen it by fifteen to twenty beats, and the respiration *temporarily* increased. The pulse-rate has subsequently been proportionate to the general condition of each individual case.

The effect of the treatment upon cases of bronchitis associated with emphysema has also been tried and the bronchitic element conspicuously modified.

A woman æt. forty, entered the Philadelphia Hospital February 5th, with entire consolidation of the left lung of the variety frequently described as catarrhal or broncho-pneumonia. She had taken cold in December, 1886; had previously been a healthy, rather stout woman. The following symptoms, as abstracted from the clinical history, were present: Abundant muco-purulent expectoration, more than a pint in twenty-four hours; profuse sweats; pulse 120, temperature ranging from 100° to 103°; anorexia, with coated tongue, and inability to receive and appropriate food. After treatment with the gas, administered twice daily since February 10th, she now seems to be convalescent. The temperature is normal, pulse 90, appetite excellent, and flesh increasing. The apparent beneficial effects were noticed within the first week, but it was four weeks before the patient was free from fever. The appetite improved within a few days from the first employment of the treatment, and simultaneously, the nervous symptoms, such as hysterical tendencies and excitement, disappeared. In this instance all treatment, except the gas, was suspended. At this date the physical signs of pulmonary lesions seem to be disappearing, and the lung seems to be approaching the normal condition once more.

Four other cases among the group seem deserving of special mention. One of these is a case of basic cavity, involving almost the entire left lower lobe. In this case the effects of the gas treatment upon temperature, sweating, appetite, etc., were conspicuous, and the gain in flesh the first four weeks was two pounds per week, but during the last two weeks there has been a loss of two pounds, although the other symptoms continue to improve.

Another case, also one of basic cavity, with marked pleural thickening, copious muco-purulent expectoration, but without other pulmonary lesions; in a word, a case suitable for treatment by the introduction of a drainage tube. The same good effects were noticed, yet although this case has been under treatment for several weeks, the temperature still remains somewhat above normal, and the secretion of pus in the cavity evidently continues, showing that some additional measures, such as those which may tend to secure perfect drainage, are still required.

Another instance is one of pneumo-thorax localized to the lower zone of the chest by adhesions of the

[1] British Medical Journal, December 18, 1886.

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lung. In this case constant cough, entirely preventing rest, night-sweats, elevated temperature, anorexia, and loss of flesh, were all marked. The gas treatment has been employed four weeks. The patient's condition has steadily improved, hectic and night-sweats and cough have ceased, and there has been a total gain of ten pounds. The patient takes daily exercise with freedom, and marked improvement in the pulmonary lesions can be recognized.

Finally, in the most sadly diseased case of the group, a man forty-five years of age, five feet ten inches in height, with cavities in both lungs, profuse bronchial catarrh, and weight reduced to 100 pounds, the progress of the disease has apparently been arrested, and although the lesions are too advanced to make it possible for him *ever* to leave his bed, yet the relief of the distressing symptoms of fever, hectic, cough, and expectoration, have certainly been manifest.

Summary.—1. In nearly all cases lasting effects have been secured in the reduction of temperature, suspension of night-sweats, lessened cough, and expectoration, and in some, all physical signs of bronchial catarrh abolished.

2. Temporarily reduction of pulse-rate fifteen to twenty beats, and temperature one-half a degree to one degree during the administration of the gas.

3. The amount of gas introduced into the bowel has varied from three quarts to a gallon at each injection. It has been introduced very slowly, from fifteen minutes to half an hour being demanded by the operation. The administration has been practised in most cases twice in the twenty-four hours. No injurious effects from the gas have as yet been observed.

4. Administration of the gas in different amounts and varying degrees of concentration is now being practised, and also investigations into the characteristics of the sputa.

5. In only one of the cases of phthisis the effects of the gas have been entirely negative.

6. In cases of phthisis complicated by intestinal lesions, experience is still insufficient to make it possible to state positive results.

7. The ultimate value of the treatment can certainly only be established by time. The probable mode of action would seem to be antiseptic, and by reducing suppuration the relief of the attending serious symptoms, the patient is permitted to gain by food, exercise, and general treatment. Thus far, the value of the gas seems to be that of a useful therapeutic measure, rather than a curative plan of treatment.

8. The method of preparing the gas for use in the hospital is as follows: The carbonic acid gas is passed through a solution of chloride of sodium and sulphide of sodium in twenty-two ounces of water. The proportion of the salts has been increased in some cases, and some trials of other combinations are being made.

PRELIMINARY NOTE ON THE CHEMISTRY OF TYROTOXICON.

By VICTOR C. VAUGHAN, M. D., Ph. D.,
Professor of Physiological Chemistry in the University of Michigan.

Mr. F. G. Novie and I have been engaged in the study of the chemistry of tyrotoxicon, and while we have by no means completed our work, we have reached some results which may be of interest to students of putrefaction.

Having a concentrated alcoholic solution of the poison, which we had obtained from milk, we added to it platinum chloride and began to evaporate it on the water-bath, hoping that the platinum would hold the poison and prevent its evaporation at that temperature. Great was our surprise when, as soon as the alcohol was driven off, the contents of the dish exploded with considerable violence. The experiment was repeated several times with the same result. After removing the platinum with hydrogen sulphide gas, the substance was found to have lost its explosive property.

We remembered that the diazo-compounds form explosive preparations with platinum chloride and that they are decomposed by hydrogen sulphide; also that the same compounds give with sulphuric and carbolic acids together a deep coloration. So we tried this test with the tyrotoxicon and obtained a color which varied from a brownish-red to a cherry-red. We then made artificially some diazobenzol nitrate, and found that with the platinum salt it gave a highly explosive compound, that it was decomposed by hydrogen sulphide gas, and that with sulphuric and carbolic acids it produced a deep coloration. But there was this difference: the diazobenzol nitrate gave a green to black color, while, as stated above, the tyrotoxicon gave a red coloration.

Remembering that our tyrotoxicon was obtained by extracting an alkaline solution with ether, we dissolved some of the diazobenzol nitrate in water, added a drop of potassium hydrate solution, shook with ether, removed the ethereal layer, allowed the ether to evaporate spontaneously, and applied the color test to the residue, when we obtained the same shade of color as with the tyrotoxicon. We also found that the ether extract reduced ferric salts in the same manner that tyrotoxicon does.

The diazo-compounds decompose rapidly when exposed to the air. This I had found to be the case with tyrotoxicon. Thinking it not likely that the diazobenzol existed in the cheese and milk as a nitrate, we prepared some diazobenzol butyrate and found the crystals of this to agree exactly with those separated from the cheese, and that they decomposed with the same rapidity when exposed to the air.

So much for the chemical resemblances. From them we supposed it probable that the tyrotoxicon which we had obtained from the cheese, milk and ice cream, consisted of free diazobenzol, some salt of diazobenzol, forming the crystals, and probably some decomposition product.

Next, as to the physiological action of the diazo-

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of the chemist, as useless to the rhinologist, the metallic salt being converted by the starch into an inactive oxide, and the starch only serving additionally to occlude the nasal chambers. And drugs applied in the form of powder, with the exceptions of iodoform and boric acid, are the reverse of beneficial in this as in all forms of atrophic rhinitis. Specific treatment, tonics, hygiene, and thorough antiseptic cleansing are, of course, insisted upon.

In cases of syphilitic origin I believe that a practical cure may be obtained by prolonged treatment, although atrophied nasal structures will never be replaced; the tubercular cases rarely improve greatly, and usually die of some intercurrent disease before reaching adult life.

The *causes* of rhinitis cirrhotica are as yet uncertain; why one case of advanced hypertrophic catarrh should remain *in statu quo* throughout the life of the individual, and another rapidly degenerate, has not been demonstrated. Ozæna in infants is probably preceded by an intrauterine catarrh of the hypertrophic variety, since turbinated cirrhosis *ab initio* is scarcely conceivable by the pathologist. A chronic rhinitis is frequently set up at birth in tubercular or syphilitic children, to degenerate speedily into a true ozæna at the end of a few months of life. I have yet to see a case of advanced turbinated atrophy in even a comparatively otherwise healthy individual, and believe that a "tubercular tendency" is the strongest predisposing factor in the disease, and a weak vitality a necessary soil. Why also we should find in one case the intolerable odor of ozæna, and in another apparently structurally identical no odor whatever, is as yet unproved. I cannot accept the statement of Lefferts that the odor is due solely to decomposition—from destruction of the serous glands, consequent sticky and tenacious character of the discharges, and damming up and putrefaction of the same within the nasal chambers,—having seen malodorous cases without any considerable amount of pent-up secretion, and observed no odor of consequence in other cases where the nares were completely blocked, the accessory sinuses not being diseased in either case. I think with Mackenzie, of Baltimore, that ozæna from "constitutional causes" is much more likely to give the characteristic stench than that originating from simple inflammatory conditions.

Advanced disease of the *middle ear* is almost invariably found in all cases of turbinated atrophy of long duration; retraction, thickening, and binding down by adhesions of the membrana tympani, with consequent deafness, tinnitus aurium, and aural pain, being the most frequent form of disease. Frequently the drum is deformed by cicatrices, and the history of recurrent, acute purulent otorrhœa may be obtained; a marked tendency to these subacute inflammatory attacks of the middle ear, and to the establishment of a chronic purulent otorrhœa, are characteristic of the ear lesions of advanced rhinitis cirrhotica. No improvement can be made in the aural conditions until the nasal disease has been so far as may be "cured," and I have found thymol of especial service in improving the condition of the aural lesions.

Turbinated cirrhosis cannot be considered a curable disease except in the very earliest stages; highly organized structures once destroyed cannot be replaced; and in consequence of the destruction of the serous glands and the great enlargement of the nasal chambers the patient cannot clear his nose by blowing, consequently even a "normal" amount of mucus speedily dries into scales if cleansing measures be discontinued, with the result of fresh crust-irritation and the rapid lighting up of the atrophic process. The best that can be done in advanced cases is to palliate or improve, and cleansing measures must be continued at intervals throughout the life of the individual to insure no active return of the disease.

After having tried almost every form of treatment, a description of which has been published, I now use thymol almost exclusively, and think that by it better results can be obtained in many cases of atrophic catarrh than by any other form of treatment known to me.

49 N. SEVENTEENTH STREET.

BACTERIOLOGICAL NOTES.

BY GEORGE M. STERNBERG, M.D.,
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The Liquefaction of Gelatine by Bacteria.

ONE of the principal advantages to be derived from the use of solid media in the cultivation of microörganisms results from the fact that in such media many species exhibit special characters as to their mode of growth, which serve to distinguish them from other species with which they appear to be identical so far as morphology is concerned.

One character, which is common to quite a number of organisms of this class, and which Koch was quick to seize upon as of value in defining specific characters, relates to the power of liquefying gelatine. When one makes a "stick-culture" in gelatine, certain organisms grow along the line of puncture, or upon the surface of the gelatine, and the mode of growth is in some cases quite characteristic. Other organisms liquefy the gelatine. This liquefaction, commencing along the line of puncture, or upon the surface, extends more or less rapidly until all of the gelatine has become fluid and the organisms which have caused this change are found in a mass upon the bottom of the test-tube.

Eisenberg, in his *Bakterio-logische Diagnostik*, divides the non-pathogenic bacteria into two classes, viz.: Those which liquefy gelatine (including fourteen species), and those which do not liquefy gelatine—ten species. The following named pathogenic bacteria liquefy the gelatine: spirillum of Asiatic cholera, Finkler-Prior's spirillum, cheese spirillum (Deneke), bacillus of malignant œdema, B. anthracis, Staphylococcus pyogenes aureus, Staph. pyog. citreus, Staph. pyog. albus, Bacillus pyrocyanus, Bacillus alvei (foul blood).

So far as the writer is aware, no satisfactory explanation of the cause of this liquefaction of the gelatine has been given, although it is evidently connected in some way with the growth of the liquefying organisms.

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In the course of my recent experiments upon the thermal death-point of pathogenic organisms I have ascertained that this liquefaction is due to a soluble chemical product which is formed during the active growth of the liquefying organisms; and that a comparatively small amount of this substance will liquefy gelatine quite independently of the living organism. This is shown by destroying the organisms in a liquefied gelatine culture by heat and then adding a small amount of the culture to flesh-peptone-gelatine which has been rendered fluid by gentle heat. Upon placing the gelatine aside in a cool place it will be found that it has lost its capacity for becoming solid.

This I have demonstrated incidentally, in numerous experiments made to determine the thermal death-point of liquefying organisms, and recently in the following experiment:

Into capillary tubes having an expanded end to serve as an air-chamber, I introduced about one-tenth cubic centimetre of an old culture of each of the following organisms:

Bacillus prodigiosus, B. indicus, B. pyocyanus (green pus), and Finkler-Prior's spirillum. The extremities of the glass-tubes were then sealed by heat, and they were placed in a water-bath maintained at 80°C. (=176°F.) for ten minutes. My previous experiments had shown that a temperature considerably lower than this insures the destruction of all of these organisms. The contents of each of these capillary tubes was then forced into a test-tube containing about 3 cubic centimetres of flesh-peptone-gelatine, liquefied by heat. This is accomplished by breaking off the extremity of the capillary tube and heating the expanded end containing air. A control-tube containing the same quantity of the same gelatine was placed with these tubes in a cool place. The following day the gelatine in the control-tube was found to be perfectly solid, while that in the other four tubes was entirely fluid.

Having thus shown that liquefaction of gelatine is due to a chemical product of some kind, produced during the active growth of certain organisms, and that a comparatively small amount of this substance causes liquefaction quite independently of the organism, I trust that some chemist will take up the question with a view to ascertaining the exact nature of this substance.

MEDICAL PROGRESS.

The Treatment of Granular Ophthalmia with Carbolic Acid.—Dr. Collins writes as follows in the *Reports of the Ophthalmic Hospital*, of London, for January, 1887, on this subject:

So intractable a disease as granular ophthalmia has necessarily from time to time had many and varied forms of treatment tried for its cure. Of the numerous caustic preparations that have been used, nitrate of silver and sulphate of copper continue most in favor. Of late I have in several cases applied pure carbolic acid just liquefied, and believe it to be quite as efficacious as these caustics; it has this advantage also, that its application is a much less painful procedure, on account of the local anæsthetic action possessed by carbolic acid. Further, it does not stain the conjunctiva when used for a prolonged period, as is the case with nitrate of silver. I paint it on the inner surface of the everted eyelids with a camel's hair brush, at intervals of one or two days, applying it more particularly at the seat of the granulations. I then syringe any excess off with a stream of water, being careful not to let the undiluted solution go either on the cornea or skin. The surface of the conjunctiva is turned white, and in a minute or two rendered anæsthetic; a slight amount of inflammation is set up, and destruction of the epithelium follows. Absorption of the granulations is stimulated, and the trachoma-coccus (supposing such to exist) is doubtless killed by the carbolic acid.

Hospital Dressing Material of the French Army.—The French military authorities are causing all the stores of materials for surgical dressings to be rendered antiseptic, as was done a short time ago with the field hospital bandaging materials in the German army. The necessary processes for the purpose are being carried out in accordance with a recent order from the French War Office, in which minute instructions have been issued regarding the steps to be taken in the proceeding. The principal dressing for wounds in the French army is still charpie, which in a great measure takes the place of the lint, cotton-wool, and tow, employed so largely in English hospitals. The order states that the whole of the charpie existing in the military hospital establishments, and in the stores and packages provided for active service in the field, is to be rendered antiseptic; a certain proportion being antisepticized by phenic (carbolic) acid, another by boric acid, and a third proportion by *bichlorure* (perchloride) of mercury. As soon as the charpie is rendered antiseptic, it is to be compressed and packed in parchment paper, which is tinged red for the "charpie *bichlorurée*," blue for the "charpie *boriquée*," and left plain for the "charpie *phéniquée*." Each packet is to be plainly labelled and hermetically sealed, and no packet is on any account to be opened until it is required for use.

The steps to be taken for purifying the charpie before rendering it antiseptic, and the mode of imbuing it with the several kinds of antiseptic preparations, are laid down with great precision. To purify the charpie, four litres of boiling water are to be poured on each kilogramme; this is to be allowed to cool, and the charpie is then to be removed and washed freely in fresh water until the water passes off perfectly clear. The charpie, after the water has been pressed out, is next to be soaked for three-quarters of an hour in six litres of a solution, 1 in 30, of chloride of lime, and again washed in water until all odor of the chloride has disappeared. The charpie is then put into six litres of dilute hydrochloric acid, 1 in 30, and half an hour afterward, is withdrawn and washed, until it does not redden litmus paper. It is now pressed, dried, and rubbed until it is sufficiently supple.

The following are the preparations employed for rendering the purified charpie antiseptic. For the charpie *bichlorurée*, 1 gramme of the bichloride of mercury is dissolved in 100 grammes of alcohol; and this solution, together with 10 grammes of glycerine and 10 grammes of Senegal gum, is added to 2½ kilogrammes of distilled water. Into this solution 1 gramme of the purified

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charpie is plunged; and, in order to distribute the bichloride throughout its substance, the liquid is pressed out and reabsorbed several times. It is then withdrawn, dried, and packed as previously mentioned.

To prepare the boric charpie, 100 grammes of crystallized boric acid are dissolved in a sufficient quantity of water; 100 grammes of glycerine, and 20 grammes of Senegal gum previously dissolved, are added to the solution; and pure water is added to make up the amount to 2½ kilogrammes. One kilogramme of charpie is treated in this solution in the same manner as has been described with the mercurial charpie.

To prepare the carbolized charpie, two plans are given, but the following is the one recommended as the most simple and equally effective. A layer of the purified charpie is laid on a piece of oiled silk (*taffetas gommé*), and over this is placed a piece of filtering paper of sufficient size. The paper is sprinkled with carbolic acid dissolved in alcohol of 95° strength. The whole is then rolled up in the oiled silk, secured firmly by cord, and placed in a chamber at a temperature ranging from 68° to 77° F. If the charpie is required to be carbolized 10 per cent., the blotting-paper is sprinkled with 100 grammes of the carbolic acid dissolved in 50 grammes of alcohol at 95°; if 5 per cent., then with 50 grammes of the carbolic acid in 50 grammes of alcohol at 95°.

The cost of the several preparations is described as being very small, and the manipulations very simple.—*British Medical Journal*, March 12, 1887.

TREATMENT OF DYSENTERY IN CHILDREN.—SIMON gives the following prescriptions for this affection:

℞.—Sod. bicarbon. . . . . gr. viij.
Magnesiæ . . . . . gr. xxx.
Colombo . . . . . gr. v.
Nucis. vom. pulv. . . . gr. jss.
Pulv. aromatic. . . . . gr. xv.

M.—Div. in chart. xx. in num.

Sig.—One powder before the two principal meals, in water or mixed with non-leavened bread.

If this is badly taken, the following may be substituted:

℞.—Tinct. quinquiniæ . . . ℥iv.
Tinct. rhei. . . . . ♏ xxx.
Tinct. colombo . . . . ♏ xxx.
Tinct. nucis vomicæ . . . ♏ viij.

of which doses of five or ten drops should be given before each meal, either in cold water or water charged with wine of quiniæ.

The diet should be reduced to pulp; eggs, meat pulp, beans carefully boiled and thoroughly mashed; starches in the form of purée of potatoes.—*Les Nouveaux Remèdes*, March 8, 1887.

THE SIGNIFICANCE OF THE RETENTION OF THE MEMBRANES AFTER LABOR.—The importance to be attached to the retention in the uterus of portions of membrane after the completion of the third stage of labor has been variously estimated by different obstetricians: some—*e.g.*, Winkel, Dorn, Ahlfeld, and Graäfe—holding that grave dangers are to be apprehended when this occurs; while others—as Alshausen, Credé, Fischer, and Cohn (who has reported two cases in which nearly the whole membrane had been retained for five days without causing any pyrexia)—believe that little or no danger of hemorrhage, septicæmia, or other puerperal mischief is caused by the retention of even considerable portions of the membrane. An explanation of this divergence of view has recently been attempted by Professor Lazarevich in the opening article of the new Russian *Obstetrical and Gynecological Journal*. His explanation is founded on the fact, unrecognized by most obstetricians, that "the membranes," even at the full term, are composed of and more or less separable into three distinct layers representing the chorion, the decidua, and the amnion. The strength of these has been investigated by Poppel, Duncan, and Ribemont, and the amnion showed by them to be much tougher than the chorion in conjunction with the decidua. Professor Lazarevich has also made a number of researches on the subject by means of an apparatus consisting of two rings covered with India-rubber, between which the membrane to be examined was stretched, the resisting force being estimated by means of a wooden hemisphere on which weights were placed, which the membrane was made to support, more weights being added until it gave way. These observations showed that the integrity of the ovum depends almost entirely on the amnion. During labor some separation of the membranes from one another usually occurs, and this is especially the case when the chorion, split or torn below, maintains a close connection with the decidua, and the decidua with the uterine wall; the progress of the labor also separates the amnion from the chorion. Roemer explains the separation of the membranes from one another by their unequal elasticity, and Professor Lazarevich declares that the chorion, being less elastic as well as more easily torn than the amnion, is frequently ruptured in several different places, some portions coming away attached to the amnion, and some being left behind attached to the uterus. The causes of retention of the chorion with the decidua are (1) the presence of villi on the chorion; (2) extravasation of blood on the decidua, with consequent formation of fibrous adhesions; and (3) adhesions in consequence of endometritis and choritis. The amnion may be retained in consequence of—(1) occasionally occurring adhesions between it and the chorion and decidua; (2) early rupture and escape of all or part of the liquor amnii; (3) a low attachment of the placenta or placenta prævia; (4) intrauterine manipulation; (5) anteversion of the uterus after the birth of the child; (6) exceptional weakness or thinness of the amnion. Retention of the decidua (which is formed from the uterine mucous membrane, not from the ovum) is, as a rule, of little moment, though it is perfectly possible for endometritis decidualis to occur, and for the retained portions of the decidua to serve for the development of microörganisms introduced from without. Shreds of the chorion, if retained either by themselves or together with the decidua, do little harm, as they rapidly undergo chemical and mechanical destruction, and are carried away with the lochia. The amnion, when retained, is much more liable to become the developing ground for bacteria, and it is to the retention of this part of the membranes that alarming symptoms are usually due. Professor Lazarevich lays considerable stress on the importance of straightening or replacing the uterus in its proper

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position after the birth of the child, before the afterbirth comes away.—*Lancet*, March 12, 1887.

The "Forced Heart" of Soldiers.—Duporchal, a Surgeon-major of the French Army, reports, in the *Archives de Médecine Militaires* for March, 1887, his studies upon this condition as follows:

In his observations the contour of the heart was carefully studied during repose and after severe exercise, as forced marches; marked dilatation was found to follow great exertion.

The conclusions reached are:

1. That the condition of "forced heart" is not a morbid entity, but a symptomatic phase common to many diseased conditions of the heart.

2. This phenomenon appears most frequently in diseases attended by modifications in the texture of the myocardium.

3. The symptoms of this condition are palpitation, breathlessness, oppression, precordial pain, "arythmie" (lack of rhythm), and dilatation of the heart. Murmurs may or may not be present; the most frequent are systolic tricuspid murmurs and extracardial systolic murmurs heard in the third intercostal space.

The occurrence of these cases among troops is explained by the constant admission into armies of men suffering from the incipient stages of heart disease, which develops to dilatation under the strains put upon them.

In campaigns these developments occur with especial readiness from the fatigues and bad hygienic conditions under which men are placed.

Incompatible Prescriptions. — The following familiar formulæ, whose combination results in an incompatibility of the ingredients, are taken from the *Therapeutic Gazette* of March 15, 1887:

A common and dangerous action is that resulting from the mixture of alkaloids with alkalies or alkaline salts, of which the following is an example:

℞.—Strychninæ sulphat. . . . gr. ss.
Elixir. brom. chloral. . . . ʒviij.—M.
Sig.—A teaspoonful morning and evening.

The result of this mixture is a colorless solution, from which is deposited in a few hours a crystalline precipitate, which is the greater portion of the strychnine ordered. Although the elixir is not officinal, it is frequently prescribed, and its potassium bromide will deposit the strychnine as an insoluble bromide. The last dose taken, unless great care to shake the mixture well was observed, would result disastrously.

The following prescription may also result badly:

℞.—Morphin. sulphat. . . . gr. ij.
Liq. ammon. acet. . . . fʒss.
Aq. destillat.,
Syr. simpl. . . . . āā fʒij.—M.
Sig.—Teaspoonful doses as ordered.

When the diluted acetic acid has been neutralized, and an excess, although not great, of ammonium carbonate is present, the precipitation of the alkaloid will result as in the first instance.

The following may also prove incompatible:

℞.—Potass. iodid. . . . . ʒj.
Spts. æther. nitros.,
Aquæ . . . . . āā ʒj.—M.

When the spiritus ætheris nitrosi is not free from nitric and acetic acids (a result which is produced by the action of the air) iodine will be set free, and a colored solution take the place of a colorless one. The chemistry of the decomposition of the spiritus ætheris nitrosi is as follows:

$$2(C_2H_5NO_2) + 3O_2 = 2(HC_2H_3O_2) + 2HNO_3.$$

A familiar example of decomposition occurring in the organism when chemical substances are given is found in the simultaneous use of calomel and potassium iodide, as follows:

℞.—Hydrarg. chlor. mit. . . . gr. iv.
Sacchar. lactis . . . gr. x.—M.
F. pulv. No. 10.
Sig.—A powder three times daily.

Also

℞.—Potass. iodid. . . . . ʒj.
Aq. destillat. . . .. . ʒiv.—M.
Sig.—Teaspoonful every three hours.

A reaction between the calomel and potassium iodide occurs in the stomach, and bad results, through the irritating mercurial formed, may occur.

An explosion or unfortunate formation of gas may result from this prescription:

℞.—Ammon. carbonat. . . . ℈ij.
Syrup. scillæ . . . . fʒj.
Syrup. senegæ. . . . ʒj.—M.

The acetic acid in the syrup of squill has been overlooked in this combination: its union with the ammonium salt would result unfortunately through the liberation of carbonic acid gas.

An Epidemic of Boils in the Lying-in Hospital at Nancy.—A woman was delivered in the hospital, where antiseptic precautions are rigorously enforced, on April 22. On the 24th the back and buttocks were found to be covered with a copious eruption of small boils, which disappeared under the usual treatment in the course of a day or two. On the 28th another woman was confined in the same ward, and on the following day a crop of boils showed themselves on the upper and inner aspects of the thighs and over the gluteal region. Washed with boracic-acid lotion, these subsided. On May 18 the same phenomenon was witnessed in the case of a young woman who was delivered on May 6, successfully treated in the same way, and two other cases occurred, the site of the eruption being the same in every case, on the 15th and 16th of the same month. Dr. Hergott, after investigating the circumstances, arrived at the conclusion that the boils in the cases after the first were attributable to infection conveyed by an imperfectly cleansed bed-pan. This utensil being carefully washed with a solution of corrosive sublimate, no further cases occurred. The possibility of conveyance of infection by such means is evident, and points clearly to the necessity for the greatest care and cleanliness.—*Archives of Gynecology*, February, 1887.

A New Adulterant for Cod-liver Oil.—Paraffin oil is said to be a new adulterant for cod-liver oil. It

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can be recognized by saponification—paraffin does not saponify.—*American Journal of Pharmacy*, March, 1887.

RATIONAL THERAPEUTICS OF CHRONIC CONSTIPATION.—DR. SPENDER writes as follows in an article which we abstract from *The Practitioner* for March, 1887:

We assure ourselves of the absence of malign tumor, of stricture of the bowel as a relic of past peritonitis, and of any obstructive difficulty in the rectum and about the anus. These disturbing elements being excluded, constipation is almost certainly due to one or more of three causes: (*a*) imperfect glandular secretion; (*b*) slow peristaltic motion; (*c*) a sluggish habit of sympathetic nerves.

The discipline should be not of the whip or the spur, but a soothing appeal to the dormant resources of nature. Let a pill be prepared containing from a quarter to half a grain of the Socotrine extract of aloes, with a grain or a grain and a half of sulphate of iron. People sometimes (without meaning to do so) exaggerate their difficulties, but this must not tempt us to order more than a minimum dose; and the cases are not a few for which one-sixth or one-eighth of a grain of extract of aloes is quite sufficient. With these indispensable constituents, the aperient and the tonic, a little extract of belladonna (say one-eighth of a grain) may be blended: doubtless it is often helpful, but more often it disturbs vision and insalivation so uncomfortably that it has soon to be withdrawn. We begin, then, by desiring an adult patient to take a pill composed as above three times a day, immediately after the principal meals. He is cautioned that at first there will be probably no apparent effect, and that two or even three days may pass before any medicinal evacuation of the bowels takes place, difficult and perhaps painful. But within the next forty-eight hours there will be most likely an evacuation of the bowels once, or possibly twice in the day; but *nothing approaching to purgation ought ever to be permitted*, and, therefore, the patient must be instructed that when the first loose motion occurs a pill must be withheld, and that he should take only one in the morning and one in the evening. For a time he continues his morning and evening pill, and is pleased to discover that so slender a medicament has such a decided effect. At the end of another interval of two or three weeks (varying with the original difficulty of the case), the patient is compelled by the same reason as before to omit another pill, and he finds that the same result is brought about by one pill daily as was originally produced by three pills. Within another month the allowance of medicine may be reduced to a pill twice or three times in a week; and, finally, the whole scheme of medical treatment becomes merely preventive in its design and scope, and he takes a pill occasionally for the sake of maintaining health and keeping off old troubles.

THE DISINFECTION OF EUSTACHIAN CATHETERS.—Induced by the publication of Lancereaux on infection of syphilis by means of a catheter, in the *Gaz. des Hôpitaux*, of February 23d, MÉNIÈRE describes his method of disinfecting catheters. He uses silver catheters solely, which are kept in a vessel filled with alcohol. Before using a catheter he exposes it for some moments to the heat of an alcohol flame. The alcohol within the catheter is thus set on fire, and the instrument radically cleaned; it is then dipped in cold water. The catheter is then thoroughly cleaned with copper wire. Using this method, it is impossible (?) to produce any syphilitic infection, even using the catheters employed in the treatment of syphilitics. The author soaks the rubber bougies used in dilating the tube in alcohol, and keeps them in a bottle containing tincture of iodine. Every patient, suspected to be syphilitic, is treated with his own bougie.

In January of this year LANCEREAUX discovered in a patient unmistakable symptoms of secondary syphilis. In seeking for the source of infection, the only point elicited was that a profuse epistaxis followed the introduction of a Eustachian catheter. Upon this the author based his conclusion that the catheter was the medium of infection. According to data, the first catherization, the infectious one, took place in the middle of September. As the epistaxis followed a repetition thereof in November, indications would point to a preëxisting chancre in the interior of the nose. In December, three months after incubation, at the time of observation, the patient presented an exanthema. Although it is very doubtful whether the disease can be attributed to the source ascribed by the author, the importance of thoroughly disinfecting all catheters after use cannot be overestimated.—*Archives of Otology*, March, 1887.

UTERINE TENTS AND THEIR EFFECTUAL DISINFECTION.—DR. DIRNER, of Buda-Pesth, has recently written in the *Centralblatt für Gynäkologie* on the effectual disinfection of tents used for gynecological purposes. He observes how, after the greatest precautions, serious pelvic inflammation may follow the introduction of sponge or laminaria tents. This accident is clearly due, not to the mere ulceration of the dilated structures, but to the introduction of septic material through the wounded mucous surface. The preparation of tents by soaking or coating in antiseptic media is insufficient. Septic matter may be introduced with the aseptic tent; surgeons handle and throw about samples at the shops, nor is the process of manufacture always properly superintended. Fritsch's method of coating tents with wax requires warm water to be at hand when the wax has to be melted, and that water may be septic. Dr. Dirner has detected cracks in the wax, allowing the admission of dust. The most carefully prepared dry tents can convey septic germs on their surfaces. For a year Dr. Dirner has employed in Professor Tauffer's wards a special system of disinfecting laminaria tents. He immerses them in a 1 per cent. solution of corrosive sublimate in absolute alcohol contained in a wide-mouthed bottle. When required, a tent is taken straight out of the solution and passed into the canal of the cervix, the patient being previously placed in the semiprone position, and the vagina disinfected. He takes care to inspect hollow stems before introduction, and should any crystals of sublimate be detected in the channel of a stem, it is dissolved with pure water. The results of this practice have been admirable, and he has seen no bad effects follow the introduction of the disinfected tents; provided that absolute alcohol be employed, the expansive power of laminaria is in no way damaged.—*British Medical Journal*, March 5, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's Address, No. 1004 Walnut St., Philadelphia.

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SATURDAY, APRIL 2, 1887.

RECTAL INJECTIONS OF GAS IN THE TREATMENT OF PHTHISIS.

THE general hopelessness of the treatment of phthisis is shown by the avidity with which new methods are sought after. Cod-liver oil, the hypophosphites, respirators, pneumatic differentiation, have in turn been extolled as curative agents, and then, after a variable period, have quietly found their place as useful remedial agents in certain cases and under certain conditions. In our issue of January 29th we referred to the treatment by rectal injections of gas, introduced by Bergeon, of Lyons, and we predicted that we might shortly expect to see a Wolff's bottle by the side of each phthisical patient. We had no idea that our prediction would so soon come true.

This is a progressive age, and knowledge acquired in the wards and in the laboratory no longer filters slowly through the professional press to reach the public in the stillness of the sick room. The ubiquitous reporter, undaunted in his ignorance, and anxious only for a sensational article, hears of the new plan of treatment under trial with some success, and announces it to the public in a widely read Sunday paper, with the startling headings, "A Doctor's Triumph," "Consumption Cured." Telegraphed everywhere, even cabled to Europe, there has been aroused an extraordinary excitement in phthisical circles, and the applications for information at the Philadelphia Hospital are numberless. The demand for rubber bags and Wolff's bottles has exceeded the supply. Other daily papers have taken up the question, and even our esteemed contemporary the *Ledger*, usually so conservative, has had an editorial on the subject, not remarkable for exactness in medical knowledge.

This premature publicity is greatly to be regretted, particularly as very many of the statements which have been spread broadcast over the country are absolutely false. So far as we know, there have been no *cases cured*, certainly not at the Philadelphia Hospital, and even those of Bergeon's patients who were most benefited continued to have slight expectoration containing bacilli. The results at the Philadelphia Hospital, in the limited series of cases which have been under treatment, and which are given in the preliminary report of Dr. Bruen elsewhere in this number, have been in the reduction of the fever and the sweats, the lessening of the expectoration, and in the increase of weight. These are gains to be thankful for, and encourage us to hope that we may have here a remedial measure of some value, but further than this nothing can be said. Phthisis, as we usually meet it, is not an acute disease, and an experience of seven weeks is far too short a time in which to form a judgment of the permanent beneficent effects of the treatment. The greatest care must be exercised in the analysis of the cases, and we must have specific details as to the pulmonary condition. We are glad to learn that it is proposed to follow up accurately the clinical history of the twenty-five cases already under treatment, as from their careful study we may hope, in a year, to receive more valuable and definite information than many scores of cases observed for but a limited period could afford.

The technical details of the method are fully described in Dr. Cohen's paper, which appears in another column. We would earnestly advise those practitioners who will employ this method to state frankly to their patients that it is not a well established plan of treatment, but only an experimental effort which may or may not succeed. It will take a year or two at least to test its value thoroughly; and meanwhile it is sad to think that so many poor victims of this direful disease will suffer also the delirium of false hope aroused by the premature and unreliable statements which, unfortunately, have been given wide currency by the daily press.

THE TREATMENT OF EXSTROPHY OF THE BLADDER.

IN THE MEDICAL NEWS for July 3, 1886, we called attention to the admirable method proposed in 1861 by TRENDELENBERG for the relief of exstrophy of the bladder. In a subsequent communication to the Fifteenth Congress of German Surgeons (*Archiv für klinische Chirurgie*, Bd. xxxiv. Heft 3), he points out the imperfections inseparable from any operation for exstrophy of the bladder, which aims only to unite the soft parts by means of flaps, and repeats his conviction that the best results can be obtained only when an attempt is made to approximate the separated pubic bones. After a number of fruitless

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experiments, he announces that he has arrived at a method which comes very near to perfect success.

This method, as we have already stated, consists in dividing the sacro-iliac synchondroses, and bringing the pubic bones together by means of external compression. The first step of the operation is as follows: The patient is anæsthetized and laid on his belly; the operator's index finger is carried into the rectum and serves as a guide to the sacro sciatic notch. The skin and other tissues are then divided down the synchondrosis on each side, in the line of each synchondrosis, and this is incised sufficiently deep to permit each ilium to be sprung away from the sacrum. This makes it possible to bring the pubic bones together. The wounds are treated antiseptically with small drainage tubes, and the skin closed over them. The pelvis is now encased in a girdle, crossing in front and bearing a weight on each side, which presses each ilium toward its fellow. From four to six weeks afterward the bladder defect—which has meanwhile become narrower—is operated upon directly. The edges are fastened to a considerable width all the way down to the orifice of the urethra, and united with fine silver wire sutures. The sutures overlap, but do not include the mucous membrane, and the wires may be supplemented with superficial thread sutures. A small rubber tube or silver catheter is left in the newly formed urethra. The after-treatment of the patient requires great care to prevent bedsores, and dangerous movements. Trendelenburg has never yet attained a healing by first intention, and his two most successful cases required a second operation. In neither did he secure continence of urine.

In the same number of the *Archiv für klinische Chirurgie* there is an elaborate paper upon the treatment of exstrophy of the bladder by PASSAVANT, who recommends gradual approximation of the pubic bones by compression, as a preliminary step, before attempting to unite the edges of the defect in the soft parts. Passavant points out the analogy between harelip and exstrophy of the bladder, and calls attention to the fact that DEMME, before 1855, succeeded in two cases in approximating and securing firm union of the pubic bones, and in increasing the capacity of the bladder, when assisted by a retentive apparatus. Unfortunately, Demme does not appear to have attempted to complete the cure by closing the edges of the defect. Passavant, who appreciates the promise of Trendelenburg's method, prefers gradual approximation, without a cutting operation, as less dangerous, while he admits that, if Trendelenburg's operation can be shown to be safe, it will be preferable, because more rapid. Passavant has tried his own method in three cases, with satisfactory results as to approximation of the pubic bones; but he has not yet proceeded to the step of closing the defect in the soft parts.

The chief interest in Passavant's paper is in his thorough and scholarly consideration of the anatomico-pathological conditions of exstrophy of the bladder and epispadias. These may be briefly illustrated, as has been done by Thiersch, by the relative condition of a book when it is closed and when it is opened so that the covers come together at the back. The space between the back of the cover and the bound pages represents the urethra, which in the normal state occupies the lowest part of the penis; but in the state of epispadias occupies the uppermost part. In epispadias the lateral parts of the penis are separated widely above and draw the urethra up between them and even above them. The cure must consist in bringing the sides up to their normal position and keeping them there. This can be accomplished only by correcting the deformity in the pelvis, and to do this Trendelenburg, as we have seen, advises division of the sacro-iliac synchondroses and rapid approximation of the pubic bones, while Passavant advises gradual approximation by compression without cutting.

We entirely agree with Passavant that Trendelenburg's method would seem to be the preferable one, if devoid of danger. And the latter's experience appears to indicate that it is unattended with risk, if properly conducted.

Both methods give the greatest promise of success when undertaken very early, even in infancy, because of the yielding character of the pelvis at this age, and Passavant suggests a resection of the pelvis after the age of puberty. In doing this he fears that the separation of the parts might lead to dangerous inflammation. This possibility we do not think so serious as Passavant does, in view of the results of aseptic surgery in our day. And, so far as the danger depends upon the formation of gaps in the bony parts, we recall the experience of Schede, in securing healing by means of blood-clot, which we commented upon in THE MEDICAL NEWS of September 25, 1886. If the principles of Schede's method were applied to the operation of resection of the pelvis, we think it likely that it would not prove to be so formidable as Passavant thinks.

In conclusion, we recommend to our readers a careful consideration of the merits of the plans proposed by Trendelenburg and Passavant, for the relief of exstrophy of the bladder, and hope that American ingenuity may suggest some improvement on the apparatus of Passavant, or even of the operative procedures of Trendelenburg.

A NEW METHOD OF DILATING THE UTERINE CAVITY.

IN April, 1886, VULLIET, of Geneva, presented to the Academy of Medicine a paper in which he claimed that he was able so to dilate the uterine cavity as to bring into plain view all parts of it, even

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the fundus, thus enabling the physician to inspect and treat morbid conditions of the endometrium, these objects being most desirable in chronic endometritis, fibroid tumors, and polypi, but especially where the mucous membrane of the uterus was the seat of a malignant growth. The dilatation was accomplished by means of small tampons of cotton previously dipped in an ethereal solution of iodoform and dried, to which were attached threads to facilitate their removal: one of these tampons, no larger perhaps than a good-sized pea, was pushed up to the fundus, with the aid of a sound, and this was followed by others until the uterine cavity was completely filled. The tampons remained in position for two days, and were then removed without difficulty, for at the end of that time the cavity was always found considerably enlarged, and the greater space thus obtained was at once filled out by fresh pledgets of cotton. Continuing in this way for about eight days the cavity of the womb and the cervical canal would be so well dilated that the endometrium could be inspected throughout its extent, the cavity could be easily explored by the finger, and both operative measures and therapeutic applications could be employed with great facility.

In order to determine its merits, the Academy appointed a commission composed of Charpentier, Cusco, and Tillaux, to investigate the practical application of this manner of dilating the womb. The report of the commission, published by Charpentier, in the *Nouvelles Archives d' Obstétrique et de Gynécologie* of December, 1886, endorses, in quite an enthusiastic manner, the claims advanced by Vulliet for the value of his method. It was found that chronic endometritis could be treated either by the curette, or by the local application of powerful remedies, with the most gratifying results, that the capsule of a fibro-myomata could be most conveniently incised, leaving the tumor to be afterward expelled from its bed by the contractions of the uterus, but that the greatest good was accomplished in cases of cancerous degeneration of the endometrium, for, with the morbid growth well exposed to view, the diseased tissue could be thoroughly scraped away and the raw surface well burned with the actual cautery. Several cases of this sort are described, in which, for the time at least, most satisfactory results were obtained.

The objection to this method of dilating the uterine cavity, and it is by no means a light one, is the great pain it gives the woman at first, although the uterus, it is claimed, soon becomes more tolerant of the foreign substances within it. The process of dilatation is, moreover, a slow one, but in spite of the length of time that the absorbent tampons remained within the uterus, they were free from odor when removed, and in no case was there the slightest rise of temperature or other manifestation of septic infection. That this method of Vulliet has some merit must be conceded, for circumstances can readily be conceived under which the accessibility of the interior of the uterus to the sense of sight and touch would be of the greatest assistance to the physician, by making the diagnosis of disease in that region more sure and its treatment more effective.

FALLACIES OF FILTRATION.

THE average householder is sensitive upon the subject of his filter. He has paid a heavy price for the word "patented" stamped upon it, and the limpid stream which trickles from it is to him a sufficient refutation of all aspersions upon its efficiency. If he changes the filtering material once annually, the whole duty of man has been accomplished. It is only when the trickling stream dwindles down to an hourly drop that any doubts arise as to the fidelity of the trusted utensil.

What has preceded this clogging? A filter arrests a large proportion of the particulate matters in water, and in ways that are obvious. Among such matters are bacteria—chiefly represented by the ordinary almost omnipresent *water bacteria*, which are practically harmless as constituents of drinking water, unless they remain there under conditions favorable to the development of those products of decomposition intermediate between proteid matter and its ultimate dissolution. In addition, and held in the pores of the filter by some means not fully understood, there is present a portion of the soluble albuminoids of the water; here, then, we have congregated both the microörganisms and their culture-medium; and, given a reasonable degree of temperature, here are the conditions requisite for introducing into the filtered domestic water supply the complete series of soluble products of albuminoid decomposition. Not only is this the case, but, after the first few days of use, the completeness of the removal and retention of the bacteria is diminished, and the results of the proliferation of these organisms are manifest in their numerical increase in the filtered as compared with the unfiltered water. This is well shown in a series of experiments with different filters, by DR. G. T. SWARTS, reported to the Rhode Island Medical Society, and recorded in *The Boston Medical and Surgical Journal* of March 24, 1887.

His results show that some filters when first used successfully remove a certain proportion of organisms from the water. Other tests made seventeen days later showed in every case a marked increase in the number of colonies in the filtered as compared with unfiltered water. For instance, the unfiltered water contained thirty-six colonies of growth, while the filtered water showed the presence of colonies to the number of 2000, 9000, and 10,000.

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An examination on the seventieth day showed an increase in case of one filter, of 117,000 colonies.

Another series of experiments was made to determine how far the consumer could cleanse his filter or sterilize it in some simple manner. The results showed, however, that even with every possible precaution, the number of organisms in filtered water exceeded the number in unfiltered by several thousands.

These investigations show conclusively that the organic matter retained in the meshes or interstices of the filtering media, contains organisms which increase rapidly while the filter is or is not in use, and especially if its position is in a warm kitchen or in proximity to a hot-water pipe.

The question of what would happen if a few stray germs of typhoid or cholera should enter this ready-made culture bed, and sojourn there until, reinforced by their progeny, they enter the organism of the unsuspecting prohibitionist, one hundred thousand strong, is unpleasantly suggestive.

WE understand that there is no truth in the report that Dr. H. C. Wood intends to accept the Professorship of Medicine in the Johns Hopkins University.

DR. HUNTER MCGUIRE, of Richmond, Va., is to deliver the annual address before the Alumni Association of Jefferson Medical College of Philadelphia, April 4, 1887. His subject will be "Progress and Development of Medical Science."

PROFESSOR ARLT, the eminent Professor of Ophthalmology in the University of Vienna, died March 7th. He was retired in 1883, having been well known and honored for his many writings and discoveries. He was the first to insist upon the necessity of having glasses prescribed and fitted by physicians instead of opticians.

A CABLEGRAM announces the death, in his seventy-seventh year, of Dr. Arthur Farre, Honorary President of the Obstetrical Society of London, and physician extraordinary to the Queen, and physician-accoucheur to the Princess of Wales.

DURING the recent festivities connected with the celebration of his ninetieth birthday the Emperor of Germany conferred the first class decoration of the Order of the Red Eagle upon Dr. Lauer, his physician in ordinary.

DR. LANGE is reported to have successfully extirpated a carcinomatous larynx from a woman at the German Hospital, New York, five weeks ago.

REVIEWS.

SKIZZENBUCH ZUR EINZEICHNUNG OPHTHALMOSCOPISCHER BEOBACHTUNGEN. Von DR. O. HAAB. Zürich: Hofer & Burger. Philadelphia: James W. Queen & Co.

SKETCH-BOOK FOR RECORDING OPHTHALMOSCOPIC OBSERVATIONS. By DR. O. HAAB.

DR. HAAB'S "Sketch-book" consists of three series of colored plates, with a few pages of explanatory text. The first series presents merely the plain general color of the normal fundus, in the second the optic disk is represented, while the third gives the retinal vessels also. The plates are designed to serve as the basis for sketches of cases encountered in practice; enabling one thus to record any lesion or anomaly of the fundus, without expending the time and labor required to fill in all the background and detail necessary for a complete colored sketch.

To make a sketch on one of these plates there are required only the double color-pencil which accompanies the book, with an eraser, the use of which gives yellowish or lighter areas; a common lead pencil or black ink to give gray or black, and a pen-knife, which by scraping away the ground color, gives spots or lines of pure white. But if it is preferred, the sketch may be completed by the use of water colors.

Dr. Haab directs attention to the benefits to be derived from the making of such sketches, both in the value of the records so obtained, and in the habit of close observation developed by endeavoring to reproduce the appearances presented to the eye. On the latter account the sketching of normal and pathological eye-grounds might well form an important part in the training of every ophthalmoscopist.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, March 9, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. LEWIS A. STIMSON read a paper on

THE TREATMENT OF OLD DISLOCATIONS OF THE ELBOW.

The great extension given in the last few years to the application of operative methods in the treatment of surgical diseases and injuries, has compelled a reopening of many questions which had been previously looked upon as settled, and has made it necessary again to collect and study the recorded experience for our guidance in the future.

Among these questions, that relating to the propriety of interference in old, unreduced dislocations is an important one, and one upon which experience is rapidly accumulating; and among these dislocations those of the elbow have an important place. The loss of mobility resulting from the injury, especially in the common dislocation of both bones backward, is usually so great that the disability is serious, the patient is unable to bring the hand to the head or chest, and is able to use it only in the arc of a circle whose radius is nearly

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equal to the length of the extended limb, and he may, in addition, possess only such rotation as can be effected by movements at the shoulder. Moreover, the injury is most common in the young, and the disability, therefore, lifelong. I desire to present to the Society a brief record of a personal case, in which features of interest and importance appear, and a survey of the recent experience of others.

My case is as follows: Maggie F., a rather delicate-looking girl, eleven years old, was admitted to the Bellevue Hospital in April, 1886, with a backward dislocation of both bones of the right forearm, which had been produced five months previously by a fall from a sofa. The elbow was flexed at an angle of 150 degrees, and was immovable except for some rotation. The soft parts covering the joint were normal in appearance and to the touch, and it was possible to recognize by palpation the relations of the bones, and that the internal epicondyle was lacking, and that the external condyle was greatly thickened posteriorly, overlapping the upper surface of the head of the radius. The length of time that had elapsed since the injury was received, the extensive new formation of bone, and the degree of the disability led me to attempt to relieve the condition by an arthrotomy, Drs. McBurney and Halsted being present and assisting.

An incision was begun at the outer aspect of the arm, about two inches above the epicondyle, carried down to and a little beyond the latter, and continued for a short distance along the forearm parallel to and a little in front of the radius, and through this the mass of bone of new formation on the back of the external condyle was freely exposed and chiselled away. This mass grew backward and downward from the upper portion of the posterior aspect of the external condyle and the shaft above it, completely overlapping posteriorly the head of the radius in the form of a buttress against which the latter rested, and was continuous on its outer and inferior margins with the condensed soft parts which formed the new capsule.

The anterior part of the capsule, which was drawn snugly around the lower end of the humerus, was easily separated from it, and the articular cartilage of the latter appeared smooth and unaltered, but the dissection behind the humerus was made very difficult by the interposition of a mass of fibrous tissue between it and the greater sigmoid cavity, which entirely filled and was closely adherent to the latter. Dr. McBurney advised the making of a second incision upon the inner side of the elbow to facilitate this dissection, but unfortunately I preferred to meet the difficulty by dividing the olecranon, being encouraged so to do by the reports of some cases to be subsequently mentioned, and by personal experience of the method in operations for tubercular disease of the joint. So the incision was extended across the olecranon, and this process was divided obliquely at its thinnest part. The back of the condyles was then easily freed, and the epitrochlea was found to have been broken off and to have reunited with the humerus at some distance above its normal position. The attached internal lateral ligament was then separated from it, and the bones were then readily brought into place. The coronoid process of the ulna had not been broken.

The olecranon was sutured with silk-worm gut, a drainage-tube placed behind the condyle through the external incision, the wound closed, and the limb placed in a splint with the elbow at an angle of about 145 degrees. It was possible to flex it to a right angle, but in that position the strain exerted by the triceps upon the olecranon was so great as to endanger its reunion. As the history will show, in thus seeking to avoid failure of union, the occurrence of another and more serious accident which I did not anticipate—recurrence of the dislocation—was favored. Two days later the dressings were changed and the limb was enveloped in plaster-of-Paris bandages. A week later a fenestra was cut, and the tube removed; there was little or no suppuration. During the following month I was absent from the city; on my return the dressing was removed, and the wound was found to be solidly healed, but the dislocation had recurred.

A second operation was done three weeks later, two months after the first. A curved incision was made, its convexity upward, beginning just below the outer side of the head of the radius and crossing above the olecranon; the ulnar nerve was exposed and drawn aside, and the joint was opened by cutting through the triceps. The joint surfaces were found almost denuded of cartilage and much changed in shape by bony and fibrous outgrowths at their borders, so I excised the lower end of the humerus and the head of the radius; the bone was much softer than usual. I enlarged the sigmoid cavity by scraping and cut a notch in the lower edge of the humerus to receive the olecranon; catgut drains. Close fibrous union of the former division of the olecranon was found. The wound healed without incident in thirteen days; passive motion was made for several weeks, and the patient left the hospital with flexion to within a right angle and almost complete extension, but on looking her up in February, 1887, about seven months later, I found the joint completely ankylosed at a right angle. The only good result of the operation was an improvement in the attitude, and against that must be offset the loss of the slight amount of rotation which existed before the operation. There is still the possibility of restoring motion by another excision, but I advised the parents not to have that done at present.

The direct examination of the joint at the two operations disclosed several interesting features, of which some are new, and others have been before described, which bear directly upon the question of the best method of treatment. The extensive overgrowth of bone upon the back of the external condyle has not, I think, been observed, or at least reported, in any other case in which the dislocation had existed for only five months, and it is to be attributed, probably, to the stripping up of the periosteum. Although it may be remembered that a specimen of incomplete outward dislocation in a child eight years old, removed by excision, presented to the Society October 25, 1886, by Dr. Lange, showed a similar growth nearly half an inch broad on the outer aspect of the external condyle, one probably produced in the same manner. Taken in connection with the avulsion of the epitrochlea, which is common in lateral dislocations outward, but rare in the backward ones, and with the apparent integrity of at least the outer part of the anterior ligament, it suggests that the dislocation was produced not by the usual hyper-extension of the elbow,

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but rather by a lateral outward flexion of the forearm which tore off the epitrochlea, and was then followed by a twist, which carried the coronoid process backward past the trochlea, and then by a direct impulsion of the bones backward and upward. Displaced in this manner, it is easy to understand that the head of the radius should have stripped the external lateral ligament from its attachment to the condyle, and have passed upward between the periosteum and the bone, leaving the former continuous more or less completely with the ligament, and itself remaining within the cavity thus formed. That the periosteum, thus stripped up, should have so promptly produced the mass of bone formed above and behind the head of the radius, is entirely in harmony with our experience. To this extent the case is exceptional, but other features are of more general occurrence, and may reasonably be looked for under like circumstances. The attitude of almost complete extension of the forearm is common, and the consequent overriding of the bones along the back of the humerus leads to the formation of new cicatricial bands between the olecranon and the humerus, and to the establishment of new attachments by the torn lateral ligaments so far above and behind the centre of motion that almost no flexion is possible without their rupture or elongation, and the return of the bones to their place can be effected only after a far more extensive rupture of these soft parts than that which accompanied the dislocation. In attempting to rupture these bands by forced flexion, the forearm is used as a lever, the fulcrum of which is situated on the ulna below the coronoid process, and the rupturing strain is exerted through the olecranon upon the ligaments and adhesions connected with it, and it is not to be wondered at that this process should so frequently have been broken in the manipulation. In the case which I have described the middle and posterior portions of the internal lateral ligament apparently had not been ruptured, but had been torn away at their upper attachment, remaining continuous with the fragment of the epitrochlea, and after this fragment had reunited with the humerus at a higher point, the ligament was as strong as it had ever been.

The filling of the greater sigmoid cavity by a mass of fibrous tissue, partly by new formation and partly furnished by the posterior portion of the capsule which slips in between it and the bone appears to be of frequent occurrence; it has been encountered in several operations, and the union between this mass and the cartilage of incrustation was so firm in my case, as also in others, as to require the application of the edge of the knife for its removal. When present it must be a serious, perhaps an insurmountable, obstacle to the restoration of the bones to their place by any method which does not directly provide for its removal. The adhesion of the anterior portion of the capsule to the cartilage covering the capitellum was but slight, and the cartilage itself was almost unaltered in appearance after the separation. The reason of this notable difference in the solidity of the adhesions contracted by the cartilage covering the greater sigmoid cavity and that covering the capitellum is not clear.

Another change, peculiar to the young, which was present in only a slight degree, if at all, in my case, is one which may so far alter the shape of the end of the humerus, and particularly of the capitellum, as to make it impossible to replace the radius and ulna even after the removal of all obstacles arising from changes in the soft parts. This change, which has rarely been noted at the elbow, is of common occurrence at the knee in the subluxations following prolonged flexion of that joint. It consists in an exaggerated growth of the epiphysis consequent upon the withdrawal of the pressure normally exerted upon it by the opposing articular surfaces, and as the conjugal cartilage of the capitellum runs obliquely from in front and above downward and backward, this growth takes place in a direction at right angles to that of this cartilage—that is, downward and forward—and the capitellum consequently forms an abnormally large hemispherical prominence on the anterior and lower part of the line. The epiphysis of the trochlea is smaller than that of the capitellum, forming only a comparatively thin scale upon the surface, and there are no observations to show any irregularity in its growth due to this cause. In the reported cases in which the capitellum was deformed, the ulna had remained more or less completely in contact with the trochlea, and consequently the factor of withdrawal of normal pressure did not exist for it. In Dr. Lange's specimen, above mentioned, the capitellum showed this enlargement very plainly, but the inner side of the trochlea was flattened.

Another change which has been observed only in cases of displacement of very long standing, is elongation of the neck of the radius, and this also I think must be attributed to the same cause. Reported specimens in which one or both changes have been observed are those of Humphrey, Allen, and R. W. Smith, but in none of them is it certain that the primary displacement was a traumatic dislocation, for they also presented evidences of defective development.

In Humphrey's[1] case the lower part of the left ulna was lacking, evidently the result of defective development; the right ulna was firmly ankylosed to the humerus nearly at a right angle, and was eight inches long, its lower end was well formed and was on the usual line with the radius; the radius was also eight inches long, and its head was displaced upward and rested against "the free part of the ridge that ascends from the outer condyle to the shaft;" it was somewhat irregular in shape, and its extra length was developed in its shaft and not in its neck as in other cases. The displacement upward was clearly the result of the elongation of the radius, whatever the cause of the original displacement from contact with the capitellum may have been, whether traumatic, pathological, or congenital.

Allen's[2] specimen was taken from the body of an elderly man without history. Both elbows were affected: flexion was normal, extension possible only to a right angle; rotation was entirely lost, the limbs being fixed in pronation. The radius crossed the front of the ulna and was united with it by bony union for a distance of about three inches at the upper part; below this part the shaft of the radius was much thickened. The neck of the radius was one and a half inches long, so that the head was carried well up behind the humerus

[1] Medico-Chirurg. Trans., vol. 45, p. 296.

[2] Glasgow Med. Journal, 1880, vol. 14, p. 44.

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on the inner side of the olecranon, and this over-riding was further increased by the abnormal growth of the external condyle downward and outward, the extent downward of the growth being estimated at half an inch. The trochlear surface was deformed, mainly by the loss of its inner lip. The olecranon fossa was so far filled up that the septum between it and the coronoid fossa was one-third of an inch thick.

In R. W. Smith's[1] specimen, which was taken from a woman about forty years old, the radius was displaced forward, and the external condyle was much larger than usual and bent forward, its anterior upper surface forming with the lesser sigmoid cavity of the ulna a deep hollow in which the head of the radius lay.

Finally, partial fractures of the head of the radius and of the coronoid process have been observed in dislocations backward, and the pressure of the fragment of the radius or the formation of bony union between the stump of the coronoid process and the humerus may interfere with reduction. In several cases the fracture of the head of the radius has caused so much disability that resort has been had to arthrotomy (Wagner in *Beilage zum Centralblatt für Chirurgie*, 1886, No. 24, p. 93), and in two cases of backward dislocation of both bones Annandale[2] found the coronoid process united to the back of the humerus "by a considerable amount of osseous material."

To recapitulate: In all cases of backward dislocation of both bones of the forearm of more than a month or six weeks' standing, it may be reasonably assumed that strong adhesions have formed between the olecranon and the stump of the external lateral ligament and the back and sides of the humerus, which must be ruptured or divided before the bones can be returned to their place, and that the greater sigmoid cavity is occupied by a closely adherent mass of fibrous tissue; and when the patient is under fifteen years of age it is probable that the lower end of the humerus has been altered in shape by the formation of new bone under the injured periosteum, on its back or sides, and by the exaggerated growth of the capitellum; and when the dislocation has lasted three months, or more, in a young patient, this deformity of the capitellum may be quite marked, and may be made still more important by an elongation of the neck of the radius.

It is possible also, though not probable, that there may be present a partial fracture of the head of the radius or of the coronoid process, which will seriously interfere with the restoration of the functions of the joint even after the reduction of the dislocation.

Turning now to the bearing of these changes upon the question of treatment, it appears that they are clearly incompatible with successful reduction by the means employed in fresh cases, even if the force employed be sufficient to rupture the adhesions and bring the bones down to the proper level. It is true that successes have been occasionally reported, but the reports rarely go beyond the statement that reduction was accomplished, and they leave the subsequent history of the case, and the degree of reëstablishment of the functions unrecorded. Until quite recently the only methods employed have been forcible attempts to reduce by traction and the breaking of adhesions, sometimes aided by subcutaneous division of the tendon of the triceps or of the adhesions on the sides and back of the joint, increase of the range of motion by the same means without reduction, reduction after fracture of the olecranon by forcible flexion, and excision of the joint.

Albert says that Liston, more than forty years ago, successfully reduced an old dislocation after having subcutaneously divided all tense bands, and that, in 1847, Blumhardt successfully practised arthrotomy in a similar case, making two lateral incisions, and dividing through them all the adhesions that opposed reduction. This case appears to have been entirely lost sight of, and it was not until thirty years later, in 1877, that Küster,[1] in reporting a case of fracture and dislocation of the astragalus, treated by excision, suggested that old dislocations of other joints might be successfully treated by arthrotomy. In the following year Trendelenburg,[2] in a paper recommending temporary division of the olecranon to facilitate operations upon the elbow-joint, reported a case of incomplete outward, or outward and backward, dislocation of both bones with avulsion of the epitrochlea, which he had treated by making an incision along the tendon of the biceps, and chiselling away enough bone from the lower end of the humerus in front of the coronoid process to allow flexion to a right angle; the result was good to that extent. A little later, Volker[3] reported a case of incomplete outward dislocation of the left elbow of six months' standing, in a boy thirteen years old, in which, after division of the olecranon, he had divided the adhesions, dissected away the new tissue adherent in the sigmoid fossa, and had then been able to reduce; as the change in the shape of the bones favored recurrence, he also removed the head of the radius. He then sutured the olecranon with two silk-worm gut sutures passed from side to side of the bone, closed the wound, and obtained a good result. His incision was V-shaped, its sides extending along the borders of the triceps, and the bottom of the V crossing the olecranon at the point where it was to be divided. The position of the limb (ankylosis in almost complete extension), and the evidences of serious pressure upon the ulnar nerve, were important factors in the determination to operate. He was so pleased with the result that he looked forward with confidence to the adoption of the method in all old dislocations with much disability.

Trendelenburg[4] promptly claimed priority in the suggestion of preliminary division of the olecranon, and reported a case of backward dislocation of both bones of eight weeks' standing, successfully treated in this manner. His incision was a curved transverse one, the convexity directed upward, crossing the median line well above the olecranon, and the flap of skin was then dissected and reflected downward to the point at which the olecranon was to be divided; this division was done with a chisel. Because of difficulty in bringing the olecranon down the limb was dressed in extension, but after the nineteenth day, when the wound was healed, the position was gradually changed, and four weeks after the operation the limb could be flexed to a right angle.

[1] Smith: Dublin Quart. Journ. Med. Sci., 1850, vol. 10, p. 213.
[2] Edinb. Med. Journ., Feb. 1885, p. 681.

[1] Berlin. klin. Wochenschrift, 1877, p. 16.
[2] Archiv für klin. Chir., 1879, vol. xxiv. p. 790.
[3] Deutsche Zeitschrift für Chir., 1880, vol. xii. p. 541.
[4] Centralbatt für Chir., 1880, p. 833.

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The olecranon reunited solidly in this case, and in Volker's.

In 1885 Nicoladoni[1] published a short paper on the application of arthrotomy to old dislocations of various joints, and included in it the reports of two cases in which he had practised it at the elbow. The first case was an almost complete outward dislocation of the left elbow in a lad sixteen years old, which had existed for eight months; the epitrochlea was broken off and drawn under the trochlea; the limb was in extension, flexion was almost entirely lost, but rotation was preserved. An incision eight centimetres long was made in front along the inner border of the trochlea, and through this the fractured epitrochlea was removed; a second incision of the same length was made on the outer side of the joint, through which, after removal of a small piece of bone which had been broken from the condyle, the soft parts were separated from the radius and the humerus; then, through a longitudinal cut made in the triceps, the adhesions between the olecranon and the back of the humerus were separated, and the bones were then easily restored to place. The wounds healed after slight suppuration; passive motion was begun after the third week, and the patient was dismissed after seven and a half weeks with the elbow flexed and movable through an arc of 35 or 40 degrees. Nine months later he wrote that he could flex and extend the joint freely, but that rotation was not quite so free.

The second patient was a large powerful man, forty-one years old, with a backward dislocation that had existed for six months. The limb was almost completely extended and immovable; there was some passive rotation. Two lateral incisions, each sixteen centimetres long, were made; through the first, over the outer condyle in front of the head of the radius, the soft parts were separated from the bone, leaving the periosteum undisturbed, into the trochlea, and above the fossa trochlearis in front and behind; the separation from the cartilage was easy in front, but very difficult behind; through the second incision, on the inner side of the elbow, the flexor muscles were cut away close in front of the epitrochlea, and the separation of the soft parts from the bone completed. The greater sigmoid cavity was found filled with hard cicatricial tissue, which was cut and scraped away after separation of the posterior attachment of the orbicular ligament. Reduction was then easily made. Two drains were placed on the flexor side of the joint, and one through the tendon of the triceps; the wound was closely sutured, Lister dressing applied, and the limb placed on a splint. Recovery took place without incident, and the patient was dismissed at the end of four weeks, the wounds being almost healed. There was good active rotation, but very little flexion; passively, there were complete extension and flexion to a right angle.

In drawing conclusions from this scanty record of only five cases we may be somewhat aided by the results of similar operations at other joints and in other forms of dislocation at the elbow. In several (five or six) cases of isolated dislocation of the head of the radius arthrotomy has been done with good results, both as regards the reduction of the dislocation and the restoration of function, although the latter has never been complete. I know of only one case (Burkhardt) in which a dislocation at the shoulder has been reduced by arthrotomy, and in this the functional result left much to be desired. In another (Albert) fracture of the surgical neck of the humerus took place during the operation, and the patient recovered with a pseudarthrosis, and in a third (Thiersch) the operation failed. At the ankle, the astragalus has been successfully replaced by arthrotomy by Dr. McBurney in a recent dislocation; and the operation has been done several times with success at the metacarpal joint of the thumb. In a case of thyroid dislocation of the hip, Polaillon[1] lost his patient by acute septicæmia.

In a case of dorsal dislocation of nine months standing, in a child seven years old, Dr. McBurney successfully reduced by arthrotomy, but the head of the femur subsequently became carious and was removed.

The success in Volker's and Trendelenburg's cases, in which the olecranon was divided, was fairly good, and the divided process reunited promptly and well; but in mine the union was only fibrous, and the position of the upper fragment was such that the limb had to be dressed in semi-extension, and to this I attribute the recurrence of the displacement. Probably the difficulty might have been avoided by a more free liberation of the upper fragment, from which I refrained because I did not think it necessary, and did not anticipate the consequences which followed. The method gave easy access to the joint, and a good view of the adhesions that needed to be divided, but in another case I should give the preference to the method by two lateral incisions without division of the olecranon.

The only facts in this brief record which may actually contraindicate resort to arthrotomy are the death of Polaillon's patient, and the change in the articular cartilage observed at the second operation in my case. Of the former it is sufficient to say that the case was of six weeks' standing, and had been subjected to several attempts to reduce under chloroform, the last one three weeks before the operation, and that the region of the hip was still tender and swollen; the patient was delicate and alcoholic. The incision was made in front, from the anterior inferior spine of the ilium downward, and during the operation the dislocation was transformed into a dorsal one. Apparently the operation was done with scrupulous attention to antiseptic details, and the occurrence of fatal acute septicæmia (with emphysematous gangrene) was probably due to extensive bruising and laceration of the soft parts; the record of the case indicates that the parallel between it and operations upon tissues that have recently been subjected to violent traumatism is close.

The change in the articular cartilage observed in my case could hardly have been caused by the inflammatory reaction following the operation, for that was not sensibly greater or more prolonged than after the original dislocation. I am inclined to attribute it rather to the keeping of the knife too close to the bone in the separation and freeing of the soft parts, and think, therefore, that in a similar case it would be better to divide the adhesions than to separate them from the humerus.

The reported cases are too few to justify much general-

[1] Wiener med. Wochenschrift, 1885, p. 728.

[1] Bull. de la Soc. de Chir., 1883, p. 101.

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ization, but the large measure of success which they have furnished is an encouragement to further trial. In the meantime, the rules of conduct in the presence of old backward dislocations of the elbow formulated by Albert appear to be judicious. He says that in elderly patients he limits interference to rupture or subcutaneous division of the adhesions, and that if reduction then fails he forcibly flexes the elbow to a right angle, with or without fracture of the olecranon, and allows it to become ankylosed in that position.

In younger patients he makes the attempt to reduce, sometimes dividing the tendon of the triceps so as to avoid fracturing the olecranon; reduction failing, he does an arthrotomy with two lateral incisions, and if this also fails he proceeds to resection.

To this I should wish to add the caution that an arthrotomy should not be undertaken until after the tissues have entirely recovered from the inflammatory reaction and the fresh lacerations of the original injury or of attempts to reduce; and that the longer the dislocation has lasted, and the younger the patient under fifteen years, the less is the probability that arthrotomy will be sufficient, and the greater the probability that excision will be required.

In old incomplete outward dislocations little good is to be hoped for from anything but arthrotomy, for the common interposition of the fractured epitrochlea cannot otherwise be overcome, or the cicatricial obstacles on the inner side removed. The choice will probably lie between improving the attitude by forcible flexion, if the limb is extended, and arthrotomy, the internal incision being made in front of the trochlea rather than upon its side.

DR. PILCHER thought that the case described by Dr. Stimson must have been the same as one he had had under observation during the previous winter. If so, he thought that he might be able to clear up some of the obscure points in it. When he first saw the patient she was under the care of a skilful surgeon, who had made a diagnosis of fracture of the lower end of the humerus into the joint; crepitus under manipulation having been distinct. At the outset of the case there was no indication of a dislocation, as stated by that surgeon, although the conditions were so obscured by great inflammatory swelling, when first seen by Dr. Pilcher, that a satisfactory examination was then difficult. It was said that there had been threatening gangrene in consequence of previous too tight bandaging. In the course of time, after union had taken place and the swelling had subsided, he again examined the case. It was now apparent that a fragment involving more or less of the external condyle had been displaced forward and downward and in its new position, where it had become fixed, encroached upon the articular surface for the radius, limiting the power of flexion at the elbow. There was also a partial backward dislocation of the ulna existing. Along the inner margin of the muscular mass of the forearm which has its origin from the external condyle, there was a depression occupied by dense, fibrous, cord-like tissue. He believed that by the gradual degeneration and contraction of this tissue the displacements had been produced that resulted in the final deformity and loss of function, these being consecutive and remote results of the original injury, which had been a fracture. The limb had been dressed in a position midway between flexion and extension. He had never questioned the correctness of the diagnosis of fracture, although when he examined the patient the condition of the joint was such as to render prolonged manipulation unjustifiable. The inflammatory swelling, and the anterior mass would have been explained perfectly well by a fracture. The patient had been under his observation for some time and a day had been set for an arthrotomy for her relief, when she disappeared. He learned subsequently that the patient had entered Bellevue Hospital.

DR. STIMSON replied that in his case there was certainly no fracture of the lower end of the humerus, but only an outgrowth on its outer side. When he excised the end of the humerus he found that it was perfect, with the exception of the epitrochlea.

DR. WEIR remarked that the good results which had been obtained in cases of old dislocations of the elbow-joint, as time went on, had led surgeons to leave these cases to some extent to nature. It was only of late that he had adopted such means as forcible flexion, division of the triceps tendon, etc., for the purpose of correcting the deformity. But he had come to the conclusion that more could be done in the way of radical treatment. Two German observers, Sprengel, of Dresden, and Schüssel, of Berlin, had shown that we could safely interfere at an earlier period after the accident than was generally supposed, and that failure to reduce the dislocation should be followed by operation, and that the rent in the capsule produced by the original injury should also be sewn up. The prognosis is better the earlier the surgical interference.

DR. GERSTER said that his experience with old dislocations of the elbow embraced four cases, in two of which operations were performed. In one instance (last December), the patient was a child two years of age, having a deformity similar to that described by the reader; the case was first seen three months after the accident. Arthrotomy and excision of the joint were resorted to; a peculiar callus was found over the external condyle, which was shown on section to be due to a fracture of the condyle. After having sawed off the surface it appeared necessary to detach this fragment, as it was so loosely attached to the humerus that it would probably have become necrosed. In all the cases, in addition to backward dislocation of the forearm, the so-called "gun-stock" deformity was marked. He believed that it was possible that the periosteum might be stripped off, and that the interval between it and the bone might become filled with blood-clot, which would organize to form connective tissue, and ultimately bone, although this had never been proved anatomically. In all the cases that had come under his observation, there had been no doubt concerning the occurrence of fracture. In a case under the care of Dr. Daniel Simpson, at the Mt. Sinai Hospital (two years before), a young man sustained a fracture of the external condyle and the capitellum, with dislocation forward, a callus being subsequently formed on the flexor side of the elbow, which prevented flexion; the bony deposit was removed, and the condition of the joint, as regarded flexion, was much improved. The two other cases which presented the same deformity are still under observation. The accident must be more common in young subjects than is generally supposed. In the men-

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tioned cases in which he had operated, the speaker had made a large incision, with the express purpose of obtaining a good view of the interior of the joint, and ascertaining the exact pathological condition. He found that the fragment consisting of one-third of the trochlea, and the external epicondyle, together with the capitellum, were twisted around at right angles to the direction of the articular surface of the humerus, so that the capitellum looked into the bend of the elbow. The diagnosis, he admitted, was not easy, especially for the reason that in many cases the patient could not be examined until several hours after the accident, when there was such an effusion of blood that the condition was obscured, and crepitus could not be obtained. The latter was the only positive sign of fracture obtainable. Most of these cases were not examples of simple dislocation, bnt of fracture complicated with dislocation backward and inward. As regarded the results of treatment, in his own case they had been quite satisfactory, flexion and extension being almost completely restored. He had performed arthrotomy in several other cases of dislocation, especially of the thumb; in one instance the flexor tendon had slipped over the head of the metacarpal bone; it was necessary to lift it out of its false position with a strabismus hook. In another case (that of a boy of twelve), the dislocation was not seen until seven weeks after the accident, although reduction would have been easy if it had been practised early. The third case was one of dislocation of the index finger of a boy; reduction was readily effected by means of arthrotomy, and division of the capsule. He also performed arthrotomy in a case of old habitual dislocation of the shoulder-joint in a young girl. Two months after the accident she entered Mt. Sinai Hospital; reduction was easily effected, but the bone would not stay in place, whereupon the speaker incised the joint, removed a portion of the lax capsule from the mesial side of the capsule, closed the latter with catgut sutures, and the patient did perfectly well.

In answer to a question by Dr. Briddon, he admitted that dislocation was generally secondary to fracture. He called attention again to the frequency of "gunstock" deformity in these cases, which Dr. Stimson had not noted.

THE PRESIDENT said that since Dr. Stimson had referred to a case in which he himself had operated, he thought it was proper that the result of the operation should be clearly stated. The patient was a child between six and seven years of age, with old dislocation of the hip, of nine months' standing, resulting from a fall; there was great deformity and disability. Some of the surgeons who examined the patient were in doubt as to whether the condition was dislocation or separation of the epiphysis. A free incision was made over the head of the femur; the latter presented a normal appearance, but a piece of the articular cartilage was easily detached. The head was movable within an artificial sac which contained about a drachm of serous fluid. The acetabulum was filled with a semi-gelatinous material. Reduction was easy after the division of a few adhesions; the wound was closed, and a hip-splint was applied. Neither fever nor other bad symptoms followed, although a sinus persisted for seven or eight months. The speaker had examined the patient about a month before. He found the child well; on manipulating the limb there was neither pain nor crepitus, and motion was fairly free. On introducing a probe, bare bone was discovered at the edge of the acetabulum. A free incision was made, and it was found that the whole head of the femur was carious, so that it was necessary to excise both the head and the neck, and to scrape out the acetabulum. The patient made a good recovery.

In reply to a question from Dr. Weir, the President said that the patient had been kept in bed after the first operation. He thought that the propriety of operating in cases of old dislocation was clear, but that an operation was more likely to be successful if it was undertaken early—that is, not later than two or three months after the accident.

DR. GERSTER said that as far as the propriety of arthrotomy was concerned there was no question about it at the present day. Under the modern antiseptic system a surgeon would do wrong not to interfere if he could not reduce a dislocation, whether he saw the case early or not. In reference to the fatal case of Polaillon's in which complete antiseptic precautions were said to have been observed, the speaker believed that the occurrence of phlegmon constituted in itself sufficient evidence that there was septic infection. The natural inference was that no one ought to undertake arthrotomy who was not thoroughly versed in antiseptics, since he risked not only the patient's limb, but even his life.

DR. STIMSON repeated that in his own case there was no fracture of either condyle of the humerus. At the first operation the articular surface was found entirely unbroken, the outline of the front of the bone was normal, and the mass of new bone on the back of the external condyle was not at all like the callus of a fracture. In reply to the objection, that an effusion of blood would occur between the detached periosteum and the bone, and that this blood would prevent subsequent formation of bone by the periosteum, it may be said the same effusion must take place under the periosteum in cases of fracture, and yet it is well known that bone is abundantly formed there.

Dr. Gerster said that whenever pus was formed it indicated some failure in the technique. In one of his cases the catgut that was used had been placed in an open vessel at an operation that took place two days before, had been left exposed all night, and had then been put into a bottle. This gut was used to tie the vessels at his operation. The patient had a violent chill the same night, with evident signs of septicæmia. Dr. Gerster opened the wound and found three ligatures surrounded by pus; the wound was subsequently treated by the open method and healed quite well. There was no trouble in the joint itself, and the patient now had perfect motion.

TUMOR OF THE BRAIN REMOVED BY OPERATION.

DR. R. F. WEIR presented a tumor which he had removed from the posterior occipital region of the brain. It was, he stated, the largest cerebral tumor that had been removed surgically. A full report of the case was promised later.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 17, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

(Concluded from page 361.)

DR. J. LEWIS SMITH said that at the present time the greater part of the profession coincided with Dr. Billing-

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ton in the opinion that diphtheria is a local disease primarily; and yet for himself he could not see how this can always be the case. He had met with a number of instances in which the disease had a period of incubation lasting as long as six or eight days, and it, therefore, seemed to him to be from the first a constitutional affection. At the same time, he was thoroughly in accord with the reader of the paper as to the great importance of local treatment. As time went on, he said, he became more and more impressed with the fact that all irritating substances should be avoided in this connection, and hence, he is in the habit of making use of very mild applications. Muriate of pilocarpine had been very highly recommended, and even lauded by some as a specific, but he felt compelled to warn those who heard him against the employment of this agent. It is extremely dangerous, and in one case in which he had used it the patient died with all the symptoms of œdema of the lungs; the fatal result in this instance being clearly due in his opinion to the effect of the drug.

As to nasal diphtheria, the nasal passages are, in his experience, not an infrequent location of the primary exudation. It is, he believed, quite a common occurrence for the diagnosis not to be made until the membranes had become very extensive, and the patient is very apt to die if local treatment is not resorted to at a comparatively early period. As to the medication to be applied through the nostrils, common salt, which had been recommended by Dr. Billington, was, he thought, hardly antiseptic enough, and he preferred to use salicylic or boracic acid. A very good combination is the following:

℞.—Acid. boracic.	ʒj.
Sodii borat.	ʒij.
Sodii chloridi	ʒj.
Aquæ	Oj.

In his practice he is in the habit of making applications to the nasal passages by means of an ordinary medicine dropper.

Dr. Smith thought highly of alkaline inhalations, but the amount of lime in lime water, which is still used to a large extent, is very small. Its alkalinity and solvent action can be materially increased, however, by adding a drachm of bicarbonate of soda to each pint of lime water. As regards trypsin, its expensiveness is an objection among the poor, but it can be used in comparatively small quantities as an addition to the ordinary alkaline solutions. It is, probably, of considerable benefit. Physicians err, he thought, in not carefully noticing at each visit whether the child is becoming hoarse or not. Hoarseness being the first indication of the implication of the larynx and trachea in the membranous exudation, its appearance should be constantly looked for.

Dr. Francke H. Bosworth said that one point of great importance had not been referred to, and this was the fact that glandular tumors of the pharynx offer one of the most favorable evidences possible for the lodgement of the diphtheritic poison; while if the nasal passages and fauces are perfectly normal, the individual is much more likely to escape the disease. The clinical significance of this point was self-evident. Dr. Billington's paper only afforded additional proof of the fact that there are no specifics for diphtheria. It is, therefore, to the faithful carrying out of the two or three indications to which he had referred that we are to look for success in the treatment of this disease. In regard to nasal injections, he thought that placing the use of the syringe in the hands of even a trained nurse, involved considerable danger, and he greatly preferred to employ the spray. Delano's atomizer, to which Dr. Billington had alluded, is a good instrument as long as it will work, but the trouble with it is that it is constantly getting out of order. Hence, it is better to use one constructed on a different principle, and the "Magic" atomizer, which can now be obtained at any druggists for a dollar, is as efficient as any for the throat. For the nose Millard's atomizer, No. 5, costing $1.25, is probably the best instrument. It has a large nozzle, and by means of it fluid can be made to pass in one nostril and out of the other by the force of the current of air generated. Of all cumbrous and useless appliances that have been put into the hands of the medical profession, he thought the galvano-cautery is the worst. The effect produced with it is simply that of heated platinum wire, without any electrical action whatever, and precisely the same results can be obtained by other agents, and in a much more convenient manner.

Dr. D. Bryson Delavan spoke particularly of the value of bichloride of mercury in the treatment, and expressed the opinion that it has scarcely received as much attention in the present discussion as its merits entitle it to. This agent has been constantly shown to have much greater germicide power than carbolic acid; and, therefore, he thought it ought to be preferred to the latter. In his own hands it has proved more productive of good than any other remedy. While in nasal diphtheria the efficiency of the antiseptic spray is unquestionable, he thought it a good plan to spray the nasal passages, even in the pharyngeal form of the disease, as it assists in freeing the pharynx of obstructions, and also enables the patient to breathe through the nose. He preferred the spray very much to the use of the syringe.

The Chair stated that Dr. J. T. Hutton, of Minnesota, having reported unusually good results with the topical use of lunar caustic, Dr. Billington wrote for some further particulars of the method of treatment, when Dr. Hutton replied that he would be present in person on this occasion, and it now gave him great pleasure to introduce that gentleman to the Academy.

Dr. Hutton said that there are probably fifty remedies that will cure diphtheria if we only knew how to use them. While the disease is local in the pharynx he believed that he can arrest it in every instance. His statistics showed a mortality of only 12 in 209 cases, notwithstanding the fact that in several of these he did not give continuous treatment. His experience was confined entirely to Minnesota; although he presumed the disease is essentially the same in its general characteristics everywhere. He had gone to Minnesota to practise nine years ago, but did not meet with any diphtheria until seven years ago. In the neighborhood in which he resided five families had lost twenty children, and thirteen families, thirty-six children from the disease before he moved there. The first time he was called upon to treat diphtheria his experience was very

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unfortunate. When he arrived at the house, which was twenty miles from his own home, he found that three children had already died of the disease, and three others were very low with it. He was sorry to say that two of the latter also succumbed afterward. In the next family that he visited he first made use of the plan of treatment to which he has ever since rigidly adhered. In this household no less than five children were dead from diphtheria, and three others were very low with it. All three of the latter, however, recovered under the treatment which he then instituted, and which he believed to be infallible for the first stage of diphtheria in the region of country in which he lived, however it might be elsewhere. He did not make use of it in the stage of stenosis.

The two great indications in diphtheria, he believed, are, *first*, as the disease is local at first, to destroy the false membranes; and, *second*, as the disease is attended with marked vital depression, to support the patient. For destroying the membranes he employs a solution of nitrate of silver of the strength of from twenty to fifty grains to the ounce applied by means of a camel's hair pencil, and he said the application is no more painful than that of syrup or water. These applications should be repeated until all the membrane is completely destroyed, and he had known of violent cases to be sometimes controlled by a single application. Chlorate of potash is also directed to be used as a gargle or swallowed. In carrying out the second indication, an abundant supply of fresh air is a necessity, and if it can be obtained in no other way, the patient should be taken out of doors, unless the weather is intensely cold. As the heart is liable to fail, it is desirable to have the patient as quiet as possible, with the body kept in the recumbent position and sufficiently warm. Milk, eggs, beef-extract, and alcoholic stimulus are to be given freely, and he generally employs quinine in doses of one grain about every hour. With this plan of treatment most of the cases were gotten under control within twenty-four hours, and there was no subsequent paralysis, or other disagreeable sequela. In nasal diphtheria he used a five per cent. solution of carbolic acid by means of the syringe.

DR. JOSEPH E. WINTERS said that local treatment is impracticable in cases of diphtheria limited to the throat in young children, though this is not the case when the disease affects the nose. If diphtheria is primarily local, the first object in the treatment should be to destroy the membranes by means of strong caustics. Yet all who had taken part in the present discussion, except Dr. Hutton, had condemned this course of action. All, however, agreed that local treatment should be directed against the membranes; but for himself, he could not see why so much stress was laid upon the membranes, as long as they were confined to the fauces. If they are removed forcibly, or by means of caustics, they will only reform. The one thing that promotes secretion more than anything else is heat; and it should be applied both internally and externally. Hot applications should be made, and these should be kept continuously hot. The primary indication in the treatment of diphtheria, he thought, is to prevent the extension of the membrane into the larynx, and this is also accomplished by the persevering use of heat. The patient is to be kept absolutely still, and no change from the recumbent posture is to be allowed for any purpose whatever. If heat were properly applied externally and internally, he did not think it worth while to fatigue the patient with the frequent or continued use of the spray. The croup bottle giving off the vapor of turpentine he had found very useful, and he is also in the habit of employing the remedies mentioned by Dr. Billington. In nasal diphtheria local treatment can be satisfactorily carried out if sufficient tact be used. In the treatment of swollen glands in connection with nasal diphtheria, Dr. Winters said that he could not subscribe to the use of ice, as recommended by the author of the paper, as he believed it to be injurious by promoting the spread of inflammation.

DR. H. D. CHAPIN said that he greatly preferred the spray to the syringe for local treatment in the throat, and spoke particularly of the liability of the use of the syringe to excite vomiting.

DR. BEVERLEY ROBINSON said that he should be very much opposed to any form of douche which caused vomiting, and that he also was decidedly in favor of the spray. He did not believe, however, that the ordinary spray-producer is of any use practically. The only atomizer which he employed is that of Dr. Lefferts, and he thought that spraying with an efficient apparatus is the only thorough way of washing out the nasal cavity. The plan referred to by Dr. Smith, of using a medicine dropper, was simply a delusion and a snare. As to Dr. Hutton's method of treating diphtheria, it was pretty nearly as old as the history of the disease itself, and the use of lunar caustic, which had formerly been employed by a large number of physicians, had been abandoned over and over again by one after another. Cubeb, he thought, is more useful in its action upon the throat than the chlorate of potash. He had at one time supposed that it had some specific effect, but he now believed that it is simply a very efficient agent in combating the catarrhal element of the trouble. In his opinion there is no one remedy which will cure a very toxic case of diphtheria invariably, and death will occasionally result whatever means may be employed against the disease.

DR. ANDREW H. SMITH said that while he agreed in the main with the practice of those who had spoken this evening, he did not agree with the majority of them in the matter of theory. As to the nature of diphtheria, he was glad to hear it stated that the membranes do not constitute the disease, and personally he believed it is as much a constitutional affection as scarlatina, for instance, and that the membranes are not even an essential element. We are told that the membranes are precisely the same as those met with in old-fashioned membranous croup, and also in those cases in which patients from time to time bring up complete casts of the trachea and ramifications of the bronchi. But if this be so, the latter class of patients must be affected with chronic diphtheria, and this he believed could not possibly be the case. The membranes, therefore, are not so important as had been represented; but still there is apt to be a necrotic process going on underneath them, and the absorption of septic material rendered it necessary to resort to local treatment. Local treatment is more important in the nose than in the throat, and as the hard-rubber syringe is apt to

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cause suffering and do injury, he is in the habit of using a soft-rubber nipple, which is attached to an ordinary hand-bulb. When this is applied in one nostril, the fluid can be made to come out at the other. It is important that the fluid employed shall be of the same density as the serum of the blood, and the preparation which he prefers is a weak solution of bichloride of mercury (1 to 4000 or 6000) with a drachm of salt to the pint of fluid, in order to give it the proper density.

Dr. Thomson said that twenty-five years' experience has convinced him of the advantages of local treatment. He related the following case. A young man whose bed-fellow was taken with diphtheria was separated from his companion and carefully watched. On the ninth day afterward he had a very severe chill; his throat and nostrils then showed nothing but a little diffuse redness. In an hour, however, there was extreme congestion of the fauces, with grave constitutional symptoms; but it was not until the sixth day that any membranes made their appearance. On the sixth day afterward all the membrane disappeared, and the temperature was found to be normal. On the morning of the ninth day, however, he had another chill. The urine was now found to be loaded with albumen, and in two days he died from cardiac paralysis. This was a case, he thought, which clearly demonstrated that diphtheria is a purely constitutional disease. His own treatment, therefore, was based on internal support. His inquiry had always been, What antiseptics can be given in the largest quantity? and he had found the chlorine group could. Bromine is a useful remedy locally, and there is one agent which had not been referred to to-night which is an admirable antiseptic, particularly when any necrotic process is going on. This was the persistent use of oxygen gas.

Dr. Alfred L. Loomis remarked that it seemed to him that Dr. Billington had arrived at the conclusion which every sensible physician would come to who carefully watched his cases. While in a certain proportion of cases the disease might be local primarily, he believed that in the great majority of cases diphtheria is primarily a constitutional affection. In former years he had seen a great deal of diphtheria, and he had travelled over pretty much all the ground that was known, however, as regards local treatment. He had employed, in the first place, mechanical agents; second, escharotics, and, third, astringents, including the nitrate of silver. The conclusion that he had at last arrived at, was that nothing but cleanliness, with local antiseptics, and constitutional support is required. There are no specifics in this disease, and it is always best to treat the case and not the diphtheria.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, March 11, 1887.

Vice-President George Wilkins, M.D., in the Chair.

Dr. George H. Fox, of New York, read a paper on

COMMON ERRORS IN THE TREATMENT OF SKIN DISEASES.

He said that the great error made by practitioners in treating skin diseases, is failure to treat the patient; the disease is treated, but not the patient. It is most important that the patient should have better food, fresher air, and, in fact, everything that tends to improve the general health. Special treatment of the disease is of no avail without first improving the condition of the patient. He thought attention to diet is most important, and said there should be a radical change both in the quantity and quality of the food; a dietary should be given the patient; the majority of patients improve on starvation diet. He advised his patients to increase the quantity of fluids, and decrease the solids; to eat less and exercise more. A change of diet is useful, the more radical the better; he gets the best therapeutical results from a vegetable diet in the treatment of inflammatory skin diseases; a meat diet congests the skin, a vegetable diet lessens congestion. He is in the habit of restricting the meat in winter, and forbidding it in summer. In giving directions to patients, it is better to tell them exactly what to eat instead of what to avoid. Water should be taken sparingly with meals, and in quantity after meals.

In speaking of local applications, he said that very few are needed. If the disease be acute, soothing applications should be prescribed; if chronic, stimulating ones. Infantile eczema is, as a rule, too much stimulated, and chronic eczema, with infiltration, too little stimulated.

In treating psoriasis, chrysophanic acid is the best remedy, but even this remedy should not be used in every case, for it does harm when there are congestion and inflammation; but later, when the eruption becomes dry, it does good. In acne a tonic treatment is the best. In speaking of local applications, the reader of the paper said that if a substance is needed to be absorbed by the skin, then the animal fats should be used; if mere protection is wanted, vegetable fats do very well. Vaseline has little power of penetrating the skin.

He then went on to speak of arsenic, which, he said, is used too much by general practitioners in the treatment of skin diseases, and which, as regards skin diseases, would not be missed if abolished from the pharmacopœia; he now rarely uses it. It is a much overrated remedy.

Dr. Shepherd said he was not prepared to go the length that Dr. Fox did in attributing such a vast influence to diet in the treatment of skin diseases. No doubt it often is important, but he thought that, like many others, Dr. Fox was riding his special hobby too hard. Many individuals with an eczematous diathesis contract eczema from their occupation—change of diet will not benefit such cases. No doubt, people, as a rule, eat too much, and in the higher ranks of society this is especially the case. In such patients diet is of the utmost importance. In this country people eat too much meat, and he is in the habit, when treating skin cases, of limiting it to one meal a day. In regard to local applications, he was thoroughly in accord with Dr. Fox. Most physicians in inflammatory skin diseases stimulate too much; it is a common thing for physicians to prescribe zinc ointment in every case, and to give no directions as to the use of water and soap. He had found many skins in the acute stage of eczema unable to bear ointments at all, and to be much relieved by a mild lead lotion. He also agreed partly with Dr. Fox concerning the misuse of arsenic. It, like zinc

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ointment, is prescribed as a routine practice in every skin case by many physicians. Still, he thought, he had given it with benefit in psoriasis and bullous eruptions. He had no hesitation in saying also that it is a most valuable tonic, and would be sorry to do without it. In treating eczema he had long ago discarded it.

DR. R. P. HOWARD said that it had been long recognized that diseases of the skin are local manifestations of a general condition. He thought that treatment by alteratives is the best. He was not prepared to hear that so much attention is now given to diet, but it seemed to him to be rational. He agreed with the last speaker in thinking that arsenic is valuable as a tonic, and useful in psoriasis and bullous affections.

DR. HINGSTON said that local treatment of skin diseases is very generally useless. He trusted to constitutional treatment by properly regulated diet. He did not agree with Dr. Fox in what he said about meat diet. The French-Canadians are great meat-eaters, yet have few skin diseases; some visit the United States and come back with affections of the skin; this he attributed to the diet, which is generally composed of pies, doughnuts, bread, and but little meat. Bread and meat he considered a good diet for skin diseases; they should, however, be taken separately. He believed in taking large quantities of water between meals.

DR. PHELPS, of Chateaugay, N. Y., as a general practitioner in the country, thoroughly endorsed every word Dr. Fox said. He believed most thoroughly in a complete change of diet in the treatment of skin diseases. He mentioned a case of infantile eczema which was cured by changing the diet from fresh cow's to condensed milk. Acne in females is, he thought, most generally caused by uterine disease, and until this is relieved the acne cannot be cured.

DR. A. L. SMITH said that he had long held that all skin diseases, not specific or parasitic, are due to errors of diet. He had little faith in local treatment, and considered that it is most important to attend to the stomach. He thought that the good old mixture of rhubarb and soda is too much neglected in the treatment of skin diseases.

DR. WILKINS asked Dr. Fox if inmates of penitentiaries are more free from skin diseases than other people. Also, if in Germany, where little meat is eaten, there is a less amount of diseases of the skin.

DR. FOX, in answer to Dr. Wilkins, stated that although they eat little meat in Germany, they drink much beer.

CORRESPONDENCE.

DEATH-RATE IN AMERICAN LYING-IN HOSPITALS.

To the Editor of THE MEDICAL NEWS,

SIR: I would like to have an opportunity to explain some points in my article on "The Death-rate of Lying-in Hospitals in the United States," which are criticised by Dr. Garrigues in his letter to THE MEDICAL NEWS of March 26. The original form of the article contained a detailed account of the number of women delivered and the number of deaths for each year, in the thirty-four hospitals, but this statistical table was found to occupy such an unconscionable amount of space in a journal devoted to general medical topics that the greater part of it was stricken out and only the total results for the six years 1880 to 1885 were allowed to remain. It would have been more courteous, I confess, to have referred specifically to the great improvement that Dr. Garrigues had effected in the Maternity Hospital, but the aim of the paper was to show the condition of the country as a whole in regard to lying-in hospitals, and, moreover, I thought at the time, and still hold the opinion, that Dr. Garrigues's pamphlet on Antiseptic Midwifery had been so widely read that it would surely be familiar to any one who might take the trouble to read my paper carefully.

As to the means, the use of antiseptic measures, by which this improvement was effected in the Maternity Hospital and afterward elsewhere, I regarded it as a fact so well known, so generally accepted, as to make a special reference to it, on my part, superfluous.

The reform instituted by Dr. Garrigues, in 1883, while it, or some modification of it, has been adopted in many of the foremost lying-in hospitals of the country, and has in them accomplished much good, has not, or had not in 1885, spread so widely or as rapidly as it should have done: Of the 3704 women who were delivered in 1885, in the thirty-four hospitals already mentioned, 2.02 per cent. died, and the following table speaks for itself:

The death-rate, from all causes, in five hospitals, 1885:

Louisville, City Hospital, . .	3.75 per ct. of women confined.		
Indianapolis, City Hospital, .	4.71 "	"	"
King's Co. Hospital, L. I., . .	4.76 "	"	"
Brooklyn, Maternity, . . .	4.44 "	"	"
New Orleans, Charity Hospital, 10.22 (!)	"	"	"

This last record reminds one of the days when Semmelweiss was struggling for reform in the Vienna Hospital or when Tarnier first took charge of the Maternité.

As to the injustice done the country by the publication of such statistics, no one could, more earnestly than I, desire to see this country as preëminent in scientific achievements as it is in material resources or political advancement, and if my original article, with the discussion it has provoked, should contribute in the smallest degree to the attainment of a higher level in this subdivision of scientific work, the management of parturient and puerperal women in hospitals, I shall feel well repaid, not only for the labor expended in the collection of the statistics, but also for the rather unfavorable criticism that their publication has excited.

BARTON COOKE HIRST.

PHILADELPHIA, March 26.

DISLOCATION OF THE FEMUR IN A YOUNG CHILD.

To the Editor of THE MEDICAL NEWS,

SIR: Our apology for reporting the following case is because of its rarity in children of such tender years, as otherwise the case presented nothing of especial interest worthy of note, except that it had a remarkable getting up only two days after the injury.

On August 24, 1885, Laura M. G., aged three years, seven months, and eighteen days, in waltzing and whirling around the room to the music of a piano, on which the nurse was drumming, fell, and in attempting to rise found she could not, commenced to cry, and complained

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of pain in the hip. The child was placed in bed, and Dr. Deppen called in. He at a glance noticed that, to all outward appearance, there was an iliac dislocation of the hip-joint. Examining the case closely, he found the usual symptoms of such an injury present.

A careful examination, Dr. Wenrich in consultation, revealed a very typical case of iliac dislocation, with absence of all symptoms indicating fracture of the neck of the bone, or separation of the epiphysis. The child was thoroughly etherized, and the dislocation reduced, without any difficulty, by manipulation, the head of the bone slipping into the socket with a very audible snap, heard by all present. The child made a remarkable recovery, feeling so well at the end of two days that she got out of bed unobserved and walked across the room. No evil followed this, and she soon followed with similar excursions. DRS. WENRICH and DEPPEN.

WERNERSVILLE, PA.

NEWS ITEMS.

CINCINNATI.

(From our Special Correspondent.)

The COMMENCEMENT OF THE MEDICAL COLLEGE OF OHIO was held March 8th. The degree was conferred upon over seventy. A more than ordinarily large Spring Course began at this institution March 15th.

The Alumni Association held its annual meeting on the afternoon of commencement. Fully three hundred members were present. Interesting addresses were delivered by the President, J. H. Tate, M.D., of the class of 1840; W. H. Kelly, M.D., 1881; and T. P. Hart, M.D., 1887. Dr. Robert Boal, of the class of 1828, and the oldest living alumnus, was elected president for the ensuing year.

THE MIAMI MEDICAL COLLEGE held its Commencement March 9th. Twenty-nine young men received the degree of M.D. With the close of this session the Miami becomes the Medical Department of the University of Cincinnati.

THE ACADEMY OF MEDICINE has elected the following officers for the ensuing year:

President.—Joseph Ransohoff, M.D.
First Vice-President.—W. E. Keely, M.D.
Second Vice-President.—F. Forchheimer, M.D.
Recording Secretary.—G. A. Fackler, M.D.
Treasurer.—George E. Jones, M.D.
Corresponding Secretary.—James M. French, M.D.

The HAMILTON COUNTY MEDICAL SOCIETY has recently been formed. Its aim is the regulation of the practice of medicine in the State of Ohio. It has not as yet received the universal support which its object deserves, yet its membership is increasing. Dr. C. G. Comegys is President; Dr. J. A. Thompson, Secretary.

THE REGULATION OF THE PRACTICE OF MEDICINE IN MINNESOTA.—A new law has just been enacted in Minnesota by the provisions of which the Governor shall appoint a board of medical examiners consisting of nine members, who shall hold office for three years. No member of this board shall be appointed to serve for more than two terms in succession, and no member of any college or university having a medical department shall be appointed to serve as a member of the board, two of which shall be homœopathic physicians.

The third section provides that all persons hereafter commencing the practice of medicine and surgery, in any of its branches, in this State, shall apply to said board for a license so to do, and such applicant, at the time and place designated by said board or at the regular meeting of said board, shall submit to an examination in the following branches, to-wit: Anatomy, physiology, chemistry, histology, materia medica, therapeutics, preventive medicine, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear, medical jurisprudence and such other branches as the board shall deem advisable, and present evidence of having attended three courses of lectures of at least six months each; said board shall cause such examination to be both scientific and practical, but of sufficient severity to test the candidate's fitness to practise medicine and surgery. When desired, said examination may be conducted in the presence of the dean of any medical school, or the president of any medical society of this State. After examination, said board shall grant a license to such applicant to practise medicine and surgery in the State of Minnesota; which said license can only be granted by consent of not less than seven members of said board.

The board may refuse or revoke a license for unprofessional, dishonorable, or immoral conduct. In all cases of refusal or revocation the applicant may appeal to appointing power of said board.

This act does not apply to commissioned surgeons of the United States, army or navy, to physicians or surgeons in actual consultation from other States or territories, or to actual medical students practising medicine under the direct supervision of a preceptor.

According to section six, any person practising medicine or surgery within the State without having first obtained a license, or contrary to the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than fifty nor more than one hundred dollars, or by imprisonment in the county jail not less than ten nor more than ninety days, or both fine and imprisonment. Any person shall be regarded as practising within the meaning of this act who shall append the letters "M.D." or "M.B." to his or her name, or for a fee prescribe, recommend for the use of any person any drug or medicine, or other agency for the treatment, cure or relief of any wound, fracture or bodily injury, infirmity or disease; provided, however, this act shall not apply to dentists.

This act takes effect on July 1, next.

IN MEMORY OF DR. FLINT.—There has just been erected at Bellevue Hospital a tablet in memory of the late Dr. Austin Flint, by the Commissioners of Public Charities and Correction. It is of massive size and very handsome as well as novel workmanship. It is a plate of brass set on a panel of antique oak. The inscription, which is imprinted on the shining brass in Roman letters of black enamel, with initials in red enamel, is surrounded by a band of conventional palm

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leaves, relieved at intervals with mat scrollwork. The inscription reads as follows:

In Memory of

AUSTIN FLINT, M.D., LL.D.

Entering the profession with broad culture and thorough education he remained an active physician to the last day of his life. As a medical writer he added to the knowledge of the American profession and to medical science. As a teacher he was loved and respected by thousands of his pupils in all parts of the country. As physician to Bellevue Hospital for twenty-five years, he contributed largely to its reputation by his character, acquirements, labors, and wise counsels.

UNIVERSITY OF NEW YORK.—The Medical Department of this institution graduated 151 candidates on March 8th.

COLLEGE OF PHYSICIANS AND SURGEONS OF BALTIMORE.—The fifteenth Annual Commencement of this institution was held on March 15th. The degree of Doctor of Medicine was conferred upon 88 graduates.

AMERICAN DERMATOLOGICAL SOCIETY.—The next annual meeting of this Society will be held in Baltimore, August 31st and September 1st and 2d.

PROFESSOR GUSSEROW.—This well-known physician has been proposed as the successor of the late Professor Schröder.

BERLIN HOSPITAL PRACTICE. — During the year which closed in January, 1887, in the nine large hospitals of Berlin 43,479 patients were treated, of whom 6347 died.

MEETINGS OF FRENCH SOCIETIES. — The French Society for Otology and Laryngology will meet in Paris on April 13th, and on the 17th and 18th of April next the yearly meeting of the Association of French Physicians will be held.

RESIGNATIONS FROM A HOMŒOPATHIC HOSPITAL.—Eight of the women physicians connected with the "Medical, Surgical, and Maternity Hospitals of the Women's Homœopathic Association of Pennsylvania," have resigned because the managers have made a rule that "no medicines, except strictly homœopathic potentized remedies, shall be allowed for use in the dispensaries or in any department of the hospital."

NOTES AND QUERIES.

THE IRON SALICYLIC SOLUTION IN RHEUMATISM.

MR. W. F. GRAYOT, of Smithland, Ky., writes us that he has been requested to prepare the salicylic acid and iron solution used in the treatment of rheumatism at the New York Hospital, according to the formula given in THE MEDICAL NEWS of December 11, 1886. He has tried it several times, but has not been able to make a perfect solution. He says: "The salicyl acid will not dissolve. Is there any special way of preparing it? If so, will you please be kind enough to send me the *modus operandi*. I have tried it every way I can think of, and have concluded that there must be some mistake in the recipe."

DR. GEORGE L. PEABODY, Physician to the New York Hospital, writes us concerning the formula, as follows:

"Upon the receipt of your note regarding the iron salicylic solution, I turned it over to my house physician, Dr. Vought, and asked him to go to the apothecary shop and put me up one ounce of the solution, exactly according to the printed formula in THE NEWS. The result is a perfectly clear solution.

"Dr. Vought tells me that the only details that are essential are to use crystalline phosphate of soda. If the water of crystallization has been driven off, you get *too much* of the phosphate. The water in the solution is warm water, not necessarily hot, but not ice cold."

A CORRECTION.

To the Editor of THE MEDICAL NEWS,

SIR: Will you kindly permit me to correct one error (probably typographical) in the otherwise accurate abstract which you did me the honor to give in your issue of March 26th, of my paper on "Local Treatment in Diphtheria," read before the Section on Practice of the New York Academy of Medicine, on March 15th. What I did say was that the nozzle of the atomizer should not be thrust far into the *mouth*—not into the nostril. I said—and believe the point to be of much practical importance—that spraying should never be made, in the treatment of diphtheria, a substitute in the nasal passages for syringing.

Yours, very respectfully, C. E. BILLINGTON, M.D.

NEW YORK March 26, 1887.

TO KEEP HYPODERMATIC SYRINGES PERVIOUS.

I have repeatedly meet with much annoyance in endeavoring to keep my hypodermatic syringe needles pervious by the introduction of the small wire furnished by the instrument dealer. Finding that the use of metallic wire favored occlusion, I naturally sought some non-corrosive substance to take its place; I substituted therefor horse-hair or fine shoemaker's bristles. Since I commenced the use of the bristles I have had no occluded needles. I claim that the use of the bristle will be of great benefit to the country practitioner.

W. E. TODD, M.D.

CLINTON, MISS, March 11, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 26, 1887.

CORDEIRA, F. J. B., *Asst. Surgeon.*—Detached from Navy Yard, Boston, and placed on waiting orders.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 22 TO MARCH 28, 1887.

PERLEY, HARRY O., *Captain and Assistant Surgeon.*—Ordered for temporary duty at Fort Maginnis, M. T.—*S. O. 23, Dp. Dak.*, March 18, 1887.

GUY, L. EDW., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended three months.—*S. O. 67, A. G. O.*, March 25, 1887.

REYNOLDS, FRANK, *Captain and Assistant Surgeon* (Retired).—Died March 4, 1887, at Oakland, Cal.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 26, 1887.

LONG, W. H., *Surgeon.*—Leave of absence extended five days, March 23, 1887.

URQUHART, F. M., *Passed Assistant Surgeon.*—Relieved from duty at Norfolk, Virginia, ordered to Washington, D. C., special duty, March 22, 1887.

PETTUS, W. J., *Assistant Surgeon.*—When relieved by Passed Assistant Surgeon Guitéras, to remain at Charleston, S. C., waiting orders, March 24, 1887,

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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THE MEDICAL NEWS.

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VOL. L. SATURDAY, APRIL 9, 1887. No. 15.

ORIGINAL LECTURES.

PROCIDENTIA UTERI.

A Clinical Lecture delivered at the Good Samaritan Hospital.

BY THAD. A. REAMY, M.D.,
PROFESSOR OF OBSTETRICS AND CLINICAL GYNECOLOGY IN THE MEDICAL COLLEGE OF OHIO.

(Reported by John M. Withrow, M.D., Assistant to Chair of Obstetrics.)

THE patient for to-day's clinic is suffering from procidentia uteri. When the entire uterus is external to the body and enveloped in the inverted vagina, it has been called by various names. By some it is called prolapsus uteri, and others, who see in this condition a close resemblance to the pathological protrusion of other organs, call it a hernia. I think procidentia appropriate to designate complete prolapsus.

The name of the condition, however, is of only secondary importance to us to-day, and we shall at once consider briefly the causes and methods of treatment. You have been taught to consider the uterus as a freely movable organ, suspended by ligaments and soft parts within the pelvis. Every pathological change in the position of the uterus indicates some pathological condition of these supports. It has been the custom to divide the causes of uterine descent into: 1. Those which press the uterus down from the abdominal cavity. 2. Those which drag the uterus down from below. 3. Those conditions which so increase the size of the uterus that its own weight leads it gradually to assume a lower position in the pelvis. Now, while it is very clear that such classification is quite rational, it is of little importance from a clinical standpoint, and a correct conception of the character and sequence of the several events which combine to create procidentia is of much greater value. This uterine displacement is usually the result of parturition, although not immediately following it, and, consequently, as in the case before you to-day, it is almost always a disease of middle life or old age. Some rare instances of procidentia have been reported in young unmarried women as a result of violent straining efforts, or sometimes it occurs from the attempts of the uterus to extrude a polypus. Except these cases, which are very rare, procidentia is either a direct or indirect result of the lacerations occurring during parturition or diseases incident to the puerperal state.

Of these puerperal diseases, probably the most important is the subinvolution of the uterus, with or without subinvolution of the vagina. Subinvolution of the uterus acts as a cause by increasing the weight of the organ, thus tending to the gradual weakening of its supports. When subinvolution of the vagina also exists, the disease comes on more rapidly, since the normal resistance of the vaginal walls to the descending uterus is impaired.

You may confidently expect uterine descent in those cases in which you find after the puerperal period a large boggy uterus, with flabby non-resistant vaginal walls, unless proper steps are taken to cure the subinvolution in both organs. Here the uterus, sinking by its own weight, wedges apart the vaginal walls, thus increasing both its own and their congestion, until it forces itself through the feebly resisting vulvar cleft. If, in addition to this increased weight, subinvolution, there also exists such an injury to the vagina as impairs its ability to sustain the uterus in the beginning and to resist its descent afterward, procidentia is all the more likely to occur.

This injury to the vagina not only conduces to the disease in this way, but it also leads directly to vaginal subinvolution and remotely to uterine subinvolution. One form of such vaginal injury as is productive of procidentia is sometimes observed in the absence of either perineal or vaginal laceration, where the descending head pushes the vaginal mucous membrane in advance of it during labor. In these cases the mucous membrane is torn loose and glided upon the deeper vaginal structures, and pouts at the vulva very much as a loose sleeve lining is pushed ahead of the hand in putting on a coat. This is all the more likely to occur because of the œdema of the submucous connective tissue of the vagina which ensues during the latter part of gestation. It is in such cases that we are apt to have uncomplicated vaginal subinvolution, and later on this flabby, congested organ dragging upon the uterus at the cervico-vaginal junction may induce uterine descent. You can also readily understand that this descent is likewise promoted by the absence of support which would occur in such an organ.

We now come to those more patent lacerations of the vagina and perineum which are the most frequent causes of the disease we are studying. Simple lacerations of the perineum in the median line, even when quite extensive, are not as active in the induction of procidentia as was formerly supposed, and many women with marked perineal loss go through life without suffering from descent of the uterus. The vagina and pelvic floor are not of so much service as supporting agents to the uterus as might be inferred from a casual study of their relations. The uterus does not bear its weight through the cervix upon the posterior vaginal wall. It is swung to the pelvic walls by means of ligaments, but you must remember that these ligaments approach the uterus intimately connected with the vagina and are attached to it at about the same place; that is, the cervico-vaginal junction. This is especially true of the sacro-uterine or posterior, and the vesico-uterine or anterior ligaments. The broad ligaments, spreading out laterally from the uterus, serve more to stay it, and keep its fundus in the proper direction than as actual supports.

Bearing in mind, then, that these anterior and pos-

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terior ligaments closely blended with the vaginal walls at their mutual points of attachment are, with their fat and connective-tissue packing about them, the chief supports of the uterus, you will readily conceive that when the vaginal walls drag downward they pull these ligaments with the uterus in the same direction. Consequently, when any disease or injury destroys the tonicity, stiffness, or support of the vaginal walls, in the lower part of the canal, they are left in some degree suspended to the uterine ligaments, and thus act as mechanical force drawing the uterus down by their own weight.

Now let us consider briefly the agencies supporting the vagina. The lateral walls are rather firmly attached to the pelvic fascia, which suspends them to the pelvic walls, in an upward and forward direction, above the origin of the levator ani muscles. The posterior wall is supported and held upward and forward by the levator ani muscles, between whose lateral halves the vaginal canal emerges at the vulva. These muscles, with the fascia covering them, are the chief supports to the posterior vaginal wall and the perineal body. They meet in this body after encircling the mouth of the vagina, between it and the anus. Their direction from their origin on the anterior and lateral interior walls of the pelvis is downward, backward, and inward toward the perineal body, thus forming, with the median portion of the same muscles, called the pubo-coccygeus, a sort of sphincter to the vagina. By this arrangement the posterior wall is literally slung up against the anterior wall, which is thus supported. In front of and above the anterior wall lies the bladder, which derives some of its support from the vagina. The rectum lying behind the posterior wall, does not serve to sustain the vagina, except in so far as it is itself held up by the levator ani, coccygeus, and other structures of the pelvic floor.

The sequence of events following perineal and vaginal injuries varies in different cases, and depends upon the character of the laceration and the position of the uterine axis. If there is such injury to the mouth of the vagina that the levators are divided laterally, or torn away from the fascia at the side near the mouth of the canal, without any or extensive perineal injury, the anterior wall at the lower part being thus unsupported, will probably pout at the vulva first, forming a cystocele. Following this, traction will first be made on the anterior ligaments by the sinking bladder and anterior vaginal wall, and the uterus will be anteverted. As the uterus descends the posterior wall comes down until prolapsus is complete and procidentia exists. In such a case, however, the cystocele will always be more prominent than the rectocele. Indeed, if there has been no injury to the perineum, there may never be a rectocele, and you may be able to introduce the finger between the uterus and posterior vaginal wall to a limited extent even with the entire uterus external to the vulva.

If, on the other hand, there should be extensive laceration of the perineum extending up the posterior vaginal wall, the sequence of events is changed. In this case the levators are separated from each other at their point of union in the perineal body and the muscles in contracting draw the sides of the vagina forward by means of their intimate union with the fascia, from which, in this injury, they are not necessarily torn. Thus the posterior vaginal wall, deprived of their support, and by the same injury losing the foundation normally given by the perineal body, sags down and out, producing rectocele. As the rectocele increases by the gravity of congestion and the straining efforts of defecation, it ultimately drags down upon the posterior ligaments of the uterus, first causing a retroversion, and gradually leading to descent and procidentia. Cystocele in such instances will usually appear before a condition of entire procidentia takes place, but since it mostly ensues after some descent of the uterus has occurred, we are justified in assigning the cystocele to the third place in the general displacement. You must remember, however, that in these cases there is always more or less cystocele, and that it is not absent in some cases of this class, as rectocele sometimes is in the class of cases previously mentioned, where cystocele was the first step in the displacement.

Let me now call your attention to the order of occurrence of these deformities in a third class of cases, in which there has been no laceration anywhere in the parturient tract. I have already referred to these cases as instances of general subinvolution of the uterus and vagina, and those cases where there has been a separation of the vaginal mucous membrane from the deeper structures.

In these the order depends upon the direction of the uterine axis when the heavy, congested uterus begins to descend. If the uterus is retroverted, the posterior vaginal wall is first lowered by the sagging posterior ligaments; and then, acting as a further cause by its own weight, it sinks lower, drawing the uterus downward, and, consequently, rectocele is the first event in the displacement followed by prolapsus of the uterus and cystocele until procidentia occurs.

The first deformity noted in this instance is not properly a rectocele, but a prolapsus of the posterior wall. I mean by this, that if you were to introduce your finger into the rectum you would not find that the anterior rectal wall was depressed or sacculated forward into the prolapsed vaginal wall as in a rectocele. Here the rectum is not affected, but remains normal in direction supported by the perineal body, and only the vaginal wall loosed from the rectum and perineal body, has come down in advance of the descending uterus. If, on the other hand, the subinvoluted uterus becomes anteverted preceding descent, and its heavy fundus lies upon the bladder, the depressed anterior ligaments will let down both the anterior vaginal wall and the superjacent bladder. Thus, as the anterior wall descends, a cystocele becomes the first of the three important events which will later characterize the displacement—cystocele, uterine prolapsus, and rectocele, or prolapsus of the posterior vaginal wall.

We now come to the important subject of treatment. What can we do to alleviate the suffering and remove the inconvenience of patients who are the subjects of this dreadful condition?

In the third class of cases where there is no laceration, and where the exciting cause is to be found in defective involution, we can usually cure the affection by postural and therapeutic treatment, followed by the use of suitable pessaries. In such cases you should put your patient in bed, replace the uterus, use at first copious vaginal irrigations of hot water, and, later, the

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depleting influence of glycerine and astringent tampons, at the same time administering judicious constitutional tonics. When in this way the uterus is greatly reduced in size, and the tonicity of the vaginal walls is improved, a suitable pessary may be introduced, and the patient allowed to go about.

It is not usually necessary to have recourse to surgery in such cases, and the use of a pessary without first treating the subinvolution, would be unwise, since the presence of a pessary would only increase the congestion in the vaginal walls, besides stretching an already too greatly distended canal, although at times the early introduction of a pessary will so straighten the vagina that the circulation will really be improved. When, however, proper treatment has so reduced the venous congestion of the vagina, and its canal is constricted by astringents, and toned up by tonics, a pessary is well borne and decidedly indicated. It will prevent the very beginning of uterine descent, and maintain the parts in such a position that the circulation is not impeded, and venous stasis improbable.

Notwithstanding these facts, you will every now and then hear of a physician who denounces pessaries *in toto*, boasts to his patients that he don't believe in them, removes them whenever he finds them, making the removal the occasion for adverse criticism. It is sufficient to say that, as a rule, such physicians have not informed themselves as to the conditions demanding the use of the pessary, nor have they any clear or scientific conception as to the *modus operandi* of support.

In the first two classes of procidentia, where lacerations of the vagina or pelvic floor are the underlying cause, surgery offers the best prospect of cure. All operations looking to the relief of procidentia propose, as nearly as possible, to restore the injured parts to their normal integrity in the first place, and in the second place, so to narrow the vagina as to prevent the descent of the uterus. Of course, this narrowing must not be so extensive as to destroy the function of the vagina.

While there has been a general unanimity among gynecologists as to the requirement of some narrowing operation, they do not agree as to the proper site and method of the repair. Some constrict the canal by operating upon the anterior wall, others confine their efforts to the posterior wall, and still others operate upon both; while all agree in restoring the parts damaged by the original injury. I regret to be obliged to say to you that no one method yet performed has been uniformly successful.

Sims, one of the pioneers in this field of surgery, was quite successful in correcting this affection by making a V-shaped denudation upon the anterior wall, as I here show you upon the board. The difficulty which sometimes arose after this procedure by the cervix getting into the pocket left behind this fold, was quite a formidable objection. Consequently, Emmet modified the operation by making three points of denudation here upon the anterior wall just below the cervix, as you see in the diagram. He drew these three points together by sutures, indicated by these lines. In this way a fold was made upon the anterior wall and no pocket left. This method, however, was not uniformly successful, and has the objection of leaving a strip of undenuded tissue between the two sides of the folds, thus weakening the repair line.

Hegar operates upon the posterior wall by denuding a large triangular space, whose base is the integument of the perineum and the apex is upon the posterior wall well up toward the cervix. The width of this triangle depends upon the amount of perineal laceration and the height upon the extent of the rectocele. The sutures are introduced transversely at the upper part of the triangle near the apex, while the sides of the lower part of the denuded triangle are brought together by perineal sutures as in the ordinary operation for perineal laceration. These lines, here in the figure on the board, indicate the direction taken by the sutures both above and below.

Simon's operation is performed in the same place, and differs only in the shape of the denudation, which in this case is roughly shield-shaped, as I here show you. Since the denudation here is wider upon the posterior wall, it accomplishes a more extensive narrowing of the vagina than Hegar's method. The sutures are introduced in much the same way as I have just demonstrated in Hegar's operation.

Martin, of Berlin, has devised an operation which presumes to restore the longitudinal columns on the posterior wall, at the same time narrowing the vagina and repairing the perineum. This drawing illustrates the shape of denudation, and these lines indicate the position and direction of the sutures. By drawing together the sides of these two parallel tracts of denuded surface upon the posterior wall, two cicatricial columns are formed, one on each side of the median line, which not only narrow the vagina but likewise stiffen its posterior wall. The coaptation of the two sides of this somewhat crescent-shaped denudation, at the lower end of these parallel tracts, repairs the perineum.

Martin also insists upon the amputation of the cervix as essential to the success of his operation, believing that there is always more or less hypertrophic elongation of the supra-vaginal portion of the cervix. I cannot consent to such universal necessity for cervical amputation, although I have often practised removal of the cervix where its hypertrophy was excessive, and in such cases I believe the amputation a most important adjuvant to the operation.

When in cases of prolapsus there is much subinvolution of the uterus which does not improve markedly during the treatment preparatory to the operation, and the cervix remains large and boggy without being specially elongated, I prefer the excision of a wedge-shaped piece of tissue. I have found such practice eminently satisfactory, both in diminishing the size of the cervix and in curing the general subinvolution of the uterus, for I believe that no operation will be permanently successful in curing prolapsus if the uterus remains in an excessive state of subinvolution.

Alexander's operation has lately come into fashion as one of the surgical procedures for curing prolapsus. It consists in shortening the round ligaments of the uterus at their points of insertion at the inguinal rings. It sometimes fails, is always difficult and frequently dangerous, and inasmuch as it is yet only on trial, and other safer operations are quite satisfactory, it is not to be recommended.

Dr. Paul F. Mundé advises both a modified Simon operation upon the posterior wall, and Stoltz's method upon the anterior wall for cystocele, in cases of procidentia.

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Stoltz makes an elliptical denudation upon the vaginal wall between the meatus and the cervix after the manner of Dieffenbach as is here represented, and then brings the freshened edges together by a single suture in a drawstring fashion, as is illustrated by this dotted line. In cases of long standing, where the cystocele is especially prominent, the necessity of narrowing both vaginal walls cannot be obviated, although generally a skilful repair of the posterior wall will be sufficient. Various other operations upon the posterior wall are performed, but those just mentioned give an idea of the object generally sought and the methods employed for its attainment. Notwithstanding all these ingenious plans, however, as I said a little while ago, none has been uniformly successful.

I, therefore, propose to-day to perform and illustrate an operation for this condition, which I have been practising for several years, and as yet with very satisfactory success. It is somewhat similar to an operation which I performed in your presence last year for cystocele; but, as you shall see, this is performed upon the posterior wall with the threefold object of correcting a procidentia, curing a rectocele, and repairing a lacerated perineum.

FIG. 1.

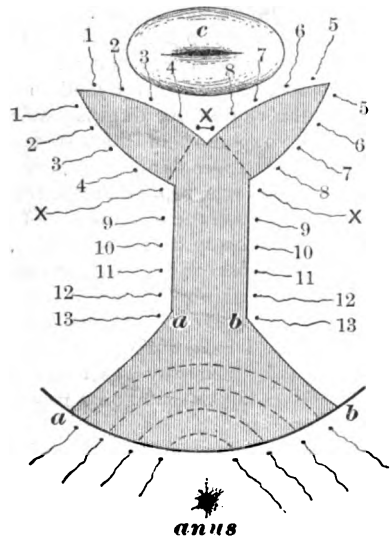
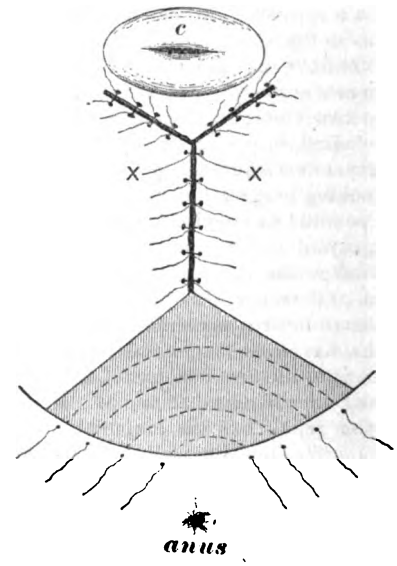


FIG. 2.



The patient will now be brought in. This patient is forty-five years of age, the mother of four children, the youngest five years old, and she is still menstruating. As you see, she is strong and well nourished. She has been a hard-working woman, and her vigor is even yet only impaired by the inconvenience and suffering caused by a procident uterus.

She first consulted me about three months ago, at which time the entire uterus was external to the body, and there was an extensive erosion of the cervix extending fully an inch from the external os in all directions. After touching this with lunar caustic I replaced the uterus and introduced a very large elastic ring pessary, the watch spring, covered with rubber; I also directed copious daily vaginal irrigations of hot water. The pessary kept the uterus up for as long as four weeks, during which time the erosion entirely disappeared and the organ was greatly reduced in size, but every now and then since, the poor woman came with pessary out and uterus down. Of course, I did not hope to cure entirely such a case as this by such treatment. I only desired to put the uterus in the best possible condition, preparatory to an operation. But please note the good effects of keeping the uterus in position even for a short period.

The patient is now thoroughly anæsthetized, and I remove the pessary. You observe the uterus is not visible at the vulva. But when I part the vulvar walls you can see the external os, and with this vulsellum I easily draw the entire organ completely outside the body. With the uterus in this position you can plainly note the greater prominence of the rectocele as compared with the cystocele. Now that I have pushed the uterus back into position, this greater prominence of the rectocele is more perceptible. When I introduce my finger into the rectum, you can plainly see, from your seats, that it enters into this pouting tumor here at the posterior commissure, demonstrating that we have to deal with a rectocele and not a simple prolapsus of the posterior wall. You also see when I part these vulvar walls that there is an extensive laceration of the perineum extending clear back to the sphincter, but not involving it.

In this case I think we are justified in assuming that the rectocele was the first in the sequence of events leading to the procidentia. We now make the operation.

Now that the operation is completed and the patient out of our presence, let me, with the assistance of these diagrams on the board, explain its steps more in detail.

Fig. 1 represents the shape of the denuded surface on the posterior vaginal wall. The arms at the upper part extend well up to the sides of the cervix in the lateral culs-de-sac of the vagina. These are denuded as deeply as is possible without entering the peritoneal cavity just below and behind the cervix, and without interfering with the ureters at the upper lateral extremities.

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It is very important that this denudation be deep, since in the first place it will give greater supporting strength by the thickness of the line of union obtained, and in the second place a deep denudation of these lateral arms will unite the vaginal walls more intimately with the underlying fascia. This increases the supporting power of this fascia to the vaginal culs-de-sac, and thus to the uterus, by giving it a "shorter hold" to the vaginal walls, if you will permit the expression.

The width of the denudation upon the posterior wall depends upon the amount of vaginal constriction required. You must be governed in the amount of divergence between the lines *aa* and *bb* by the extent of perineal injury. The greater the injury the wider the divergence.

If there should be no laceration of the integumentary perineum, these lines should converge to a point on the posterior vaginal wall at or just behind the fourchette. I use catgut for the sutures inside the vagina, those numbered in the figure 1 to 13 inclusive, and also for the suture marked ×, because of the difficulty in removing either silk or wire over the freshly united perineum.[1] These should all be tied before the perineal sutures are introduced, indeed, it is best to secure them before the perineal denudation is made.

The suture marked × is of great importance and I wish to call special attention to it. It should be introduced about one-quarter of an inch from the border of the denudation in the angle made between the denuded tract on the posterior wall and one of the denuded arms. From this point it is carried across the denudation in the direction indicated by the dotted line and brought out in the undenuded apex between the two arms behind the cervix, it is then reintroduced in this apex about one-quarter of an inch from its point of emergence and carried across the other denuded arm in the direction of the other dotted line and brought out at a point in the opposite angle between the lateral arm and the posterior tract corresponding to the point of entrance. In tying this suture across the upper part of the posterior denuded tract the three angles are brought together.

Fig. 2 shows the field of operation after all the vaginal sutures are tied. For the perineum silver wire is used in the usual way, as shown here in the diagram, but the upper sutures should be carried across high up, about on a level with the lowest suture inside the vagina, so as to secure perfect coaptation of the line *aa* to the line *bb*.

Finally, as to our patient; sexual intercourse must be forbidden for three months after the sutures are removed. During this time she must not do hard work, but must spend part of each day on the couch. These precautions are necessary in order that the modified vagina may become firm, and that the uterus in its restored position may undergo involution. For, unless the weight of the uterus be reduced, it is only a question of time when prolapse will again occur, no matter what operation has been done upon the vagina.

[1] The great objection to catgut, heretofore, has been the danger of its speedy absorption before union had occurred, but this difficulty has been surmounted by the method of Veit, of Berlin. He places the gut in pure oil of juniper wood for twenty-four to forty-eight hours, and then preserves it in a mixture of pure alcohol and glycerine, ten per cent. of the latter, till used. Water should never touch the gut. In this way it lasts in the tissues for ten or twelve days. See letter by Paul F. Mundé, Amer. Journ. Obst., page 914, 1886.

ORIGINAL ARTICLES.

ANEURISMS TREATED BY THE INTRODUCTION OF CATGUT, OR OF WIRE, WITH ELECTRICITY.[1]

By ROBERT ABBE, M.D.,
ATTENDING SURGEON TO ST. LUKE'S HOSPITAL.

The domain of cases upon which the surgeon may operate, owing to newly adopted principles, is enlarging year by year, and just in that proportion the number of "hopeless" cases diminishes. The most superficial observer will see a growing disposition to interfere with many varieties of infirmities for which in the past active treatment has been discouraged by all surgical authorities. One is led from time to time to review such maladies, and to ask whether advanced methods will yet allow us to touch them. As the miner has often found a fortune in the discarded ores of silver mines when worked over by a new process, so now some of the forbidden cases of twenty years ago are fairly met by justifiable new procedures.

In this spirit of inquiry I venture to open the question of the value of interference with a small class of aneurisms, the treatment of which has heretofore been considered useless. This class is that of aneurisms springing from the aorta or its greater branches, and not amenable to the ligature or relieved by medicine, diet, or rest. These are so common that we all see them from time to time. They run a steady downward course, interrupted, happily, in some cases by a temporary clotting, but soon advancing again, leaping the barriers of bone and cartilage until the thinned walls give fatal pressure effects on veins, nerves, or the trachea, or sudden rupture ends the patient's misery.

Taking our guide from nature's attempt at repair by the two methods of deposition of firm clot, or by thickening the sac through hypertrophic, or inflammatory, changes, we find the most promising to be that of inducing clot within the sac.

Practically, accumulated experience shows that coagulation *will* take place upon certain foreign substances introduced into the current. Wire is especially favorable, either silver, iron, or steel. This can be sterilized by preliminary boiling in carbolic solution. Thirteen cases of the use of wire have now been reported, to which I am able to add two more. The first attempt was made by Mr. C. H. Moore, of Middlesex Hospital, in 1864, of which I will speak later. Moore's method consists merely in the introduction of wire. Of the cases now on record, the most brilliant results were obtained last year by Loreta, of Bologna, and Morse, of San Francisco. The outcome of the others has not been curative, though seeming to look in the right direction.

[1] Read before the New York Surgical Society, March 23, 1887.

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Last year Mr. Richard Barwell practised a modification of Moore's method, by introducing ten feet of steel wire into an aneurismal sac and passing a current of electricity through it, sufficiently strong to obtain an electrolytic action and to induce the formation of a coagulum by quick deposit. Thus, he substituted a long wire, coiled in the blood-current, for the short needle-point of so-called electropuncture, which latter alone has in many hands been of unquestionable service in ameliorating the condition of aneurisms in the last stage.

Mr. Barwell's patient was a man with large aneurism of the aortic arch, apparently a hopeless case, and associated with serious lung trouble. A fine, insulated trocar served to allow the steel wire to pass. The positive pole was attached to this, while a negative pole of spongiopiline was spread over the back. A current of ten milliampères was passed for an hour and ten minutes. The man had no pain or inconvenience. The tumor gave no sign of immediate improvement, but in twelve hours "the man appeared much better, the tumor was more solid, and the pulsation more distant." Four days later a tumor appeared at the other side of the neck, which had been observed two years before, and then disappeared—evidently an extension of the sac in that direction. One week later he died of his pulmonary trouble. A post-mortem was obtained, and of the clot that was formed in the aneurism he says: "The wide coils of wire are surrounded by thick, firm, colorless clot, which in many places binds the wire to the sac-walls, thus strengthening them and rendering rupture hardly possible where the wire had penetrated. In the secondary sac this had not formed." Barwell commends the method for large internal aneurisms.

Soon after the publication of Barwell's case, Dr. J. West Roosevelt, of this city, had an opportunity to try the method on a case of aggravated aortic aneurism threatening death. He has kindly offered me the case to report in this connection.

The patient was a man of twenty-five years, with a syphilitic history. In November, 1885, he began to notice a dry cough; some weeks later dyspnœa and dysphagia ensued, and pain was present in the right pectoral region and axilla, occasionally extending down the right arm, or into the back near the scapula. At that time also he noticed a pulsating tumor in front of the chest at the right of the sternum. His dyspnœa was great when he lay on the left side or back. He had been prevented from working for four months, yet he was in fair flesh. The pulsating tumor involved the four upper ribs near the sternum and gave a double bruit. He was given iodide of potash, was kept at rest, and somewhat under the influence of anodynes for two weeks with slight ease from pain, but the tumor continued to enlarge.

On the 4th of August, Dr. Roosevelt placed the man on his back, and inserted a short, insulated aspirator-needle into the tumor; when the blood trickled out, he passed about seventy-five yards of fine steel piano-wire (No. 00). The patient experienced some feeling of weakness, became pale, and had pain, from the position on the back, to which he was unaccustomed. The wire was connected with one pole of a constant battery, and a large wet reophore was placed under the right shoulder. From four to eight cells of an ordinary galvanic battery were used, measuring about twenty-five milliampères. It gave him no pain, and was continued for a half hour. The tumor still pulsated. The patient was kept quiet another half hour and then was put to bed. He had no pain subsequently from the operation. On the following night he required morphia for insomnia.

Next day the tumor did not pulsate so strongly, and he had some pain and vertigo. On the third day the tumor was less painful, but still pulsated. His breathing was not so comfortable, and in the evening his temperature rose to 100°, but fell to normal in the morning, and remained so afterward. On the fourth day dyspnœa and slight cyanosis appeared. On the seventh day he was better than before the operation, and had less pain and dyspnœa. By the tenth day the tumor was much less painful, the pulsation visibly diminished, and he could breathe easily lying on his back or left side, which he formerly could not do. During the third week he could swallow and breathe with greater ease, and the tumor felt harder. At the beginning of the fourth week he began to vomit, and to complain of headache. His iodide of potassium was, therefore, stopped. On the twenty-second day a painful, dark-colored spot appeared on one toe, and the man appeared badly. On the twenty-third day he died. No autopsy could be obtained.

In October last, I had an opportunity to repeat this operation in the following case: A man, forty-six years of age, free from specific history, was referred to me by Dr. Naughton, for treatment of a large pulsating tumor at the root of the neck, on the right side. It had been observed as a very small swelling above the clavicle, not more than a year before, and had steadily enlarged until now it filled the supra-clavicular space, extending backward to the scapula. The greater growth of late had been back of the middle plane of the neck. A loud bruit could be heard over its entire surface. Its pulsation lifted the shoulder at every beat. Neuralgic pain of the right shoulder and arm had been coming on for several weeks, and pressure on the brachial plexus caused paralysis of the deltoid and triceps muscles. The right arm and right half of the face remained dry, while the opposite side was covered with profuse perspiration. There was slight hoarseness. The right pupil was smaller than the left, and ptosis of this eye had developed. The axillary, brachial, and radial pulses were small. A diagnosis of dissecting aneurism of the subclavian was made.

After consultation (Drs. Sands, Weir, Peters, McBurney, Bangs, Lange, and Bull) it was decided that the condition would not be checked even by ligature of the carotid, with shoulder amputation, and being left with a patient whose pain was only eased by frequent hypodermatics of morphine, while the growth of the aneurism could be seen to advance every day, I decided to resort to Barwell's method, to lengthen his life, and, perhaps, to lessen the

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pain. The oval cavity of the tumor was estimated to measure four by five inches.

After three weeks' observation, under iodide of potassium, I decided to use catgut before employing wire. I operated on November 19, no anæsthetic being given. With a No. 2 aspirator-needle, I pierced the front of the sac, and the blood spirted out to a distance of two or three inches. No. 1 catgut, taken fresh from juniper-oil, and drawn through a damp sublimated towel, was easily, though slowly, pushed into the sac. It was best fed by short grasps of the thumb forceps. One hundred feet of it were thus introduced, occupying an hour. The patient lost two or three ounces of blood only, and had no pain, or discomfort, whatever. There was a slight rise of temperature (to 101° F.), on the following day, the pulse remaining unchanged. The tumor was a little warmer than before. On the second day the patient continued to feel well. The outer third of the sac had very decidedly hardened; the remainder pulsated as before. An ice-bag was ordered to be applied. The radial and brachial pulses could not be felt. The hand continued warm. On the third day his temperature rose to 102°, though he felt otherwise as well as he did before the operation. After that his temperature declined rapidly to normal. The tumor, however, grew decidedly backward and upward during the week, and lifted the scapula. On the eighth day the dissection seemed much more rapid, and the hoarseness amounted to aphonia.

On the ninth day Dr. Roosevelt very kindly assisted me, and I introduced through an insulated aspirator-needle one hundred and fifty feet of fine steel wire, sterilized by boiling in carbolic acid solution; a copper plate a foot square, covered with wet cotton, was placed over his back and was connected with the negative pole, and the positive was attached to the end of the wire. A current was measured by Dr. Roosevelt up to fifty milliampères, which was the limit of the register. This required but fifteen cells; the entire thirty-six cells of the galvano-faradic battery were subsequently applied. The patient experienced no pain or discomfort. His pulse which had been 110, rose only ten beats during the process. The current was continued for an hour—the latter part of the time reversed so as to bring the negative pole within. He was rather exhiliarated than otherwise, and when removed to bed would not have known that any operation had been done.

The tumor still pulsated when we concluded. On the following day I could perceive an increased firmness in the walls, though the pulsation continued. Subjectively the patient felt rather better, and I had some hopes of the outcome, when, on the second evening, he suddenly had a rupture of the sac into the trachea and expired. It was impossible to obtain an autopsy.

Although it is to be regretted that these cases could not be followed to the post-mortem table, there are yet some points of value in each that may be added to the study of the subject. It will be seen that both were utterly hopeless cases, and, while we cannot assert that life was prolonged, it was not shortened by the operation. In my own case the man was approaching his end, and it was his only hope.

The question may be asked, whether the rupture of the sac into the trachea was hastened by the pressure of the wire inside. I judge not, for the tracheal pressure that preceded the rupture had been progressively getting worse, as evidenced by the hoarseness increasing for a month—showing that it was making its way toward the trachea. I find three other cases of rupture following active treatment. One of Churton's last year, in which he had used electro-puncture without wire, and in twenty minutes fatal hemorrhage from the trachea ensued; the other was Domville's case of aortic aneurism, in which he put fourteen inches of iron wire into a sac, and when four weeks later the man died of sudden rupture into the pleura, it was found that no wire was near the perforation. The same occurred in Dr. Ransohoff's case, reported at the last meeting of the American Medical Association; over ten feet of silver wire were introduced into the sac, in two sittings, three weeks apart. Death suddenly occurred one week after the last, from rupture into the pleura, but the autopsy showed that there was no wire near the place of rupture. (The Medical News, May 29, 1886, page 597.)

Whether the duration of life was longer or shorter owing to the treatment by wire insertion, is pure speculation. My own impression is, from studying all the cases, that without exception every one was in a desperate state before operation. Some even threatened dissolution. My own patients lived thirty-six hours only, before rupture occurred. Most of them lived several weeks, and Loreta's, ninety-two days, having apparently been restored to health, while Morse's still survives. In one case reported by Mr. W. Cayley, the large aneurism at the root of the neck became solid and the patient lived eighty-six days after some forty feet of steel wire were introduced. The thoracic portion of the aneurism extended, and Mr. Gould subsequently put in thirty-five feet more to solidify if possible the portion that was causing serious dyspnœa. No disturbance followed nor was he relieved.

As regards the chances of emboli from the wire giving trouble, I find but two of the fifteen cases in which wire was introduced, that caused such an accident. Mr. Moore's case, the first on record, showed at the post-mortem suppurating foci in the kidneys, with death on the fifth day. As the case occurred in 1864, it is quite as probable these were septic as that they were embolic. No case that has since been done has shown septic infection, due to the care now exercised in sterilizing the wire.

In a note in the *British Medical Journal* of May, 1885, Dr. Maclean, who witnessed Mr. Moore's operation twenty-three years ago, and who saw the organs and aneurism after the autopsy, says that the immediate cause of death was inflammation of the sac and the pericardium, and also he recalls the innumerable clots in the fresh preparation, of varying consistence, hanging from the wires, ready to drop into the blood, and emboli exactly like them were found in the arteries of the organs dissected to

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show them." In Dr. Roosevelt's case a dark colored, painful spot appeared on one toe on the twenty-sixth day. The absence of other reported accidents by emboli, shows that it is no more to be feared from wires than from the untreated walls of an aneurism.

Having shown that nature will tolerate considerable quantities of wire for periods of eighty-six and ninety-two days, and even indefinitely in favorable cases, as in Dr. Morse's, and that it has never been known to induce suppuration when aseptic, it is now of importance to see how much solidification is really brought about by the foreign substance. Of the sixteen cases of wire-insertion, eight were followed to an autopsy. Bacelli's third case, in which seven watch-springs, each about twenty inches long, were inserted, was the only one which failed to show coagulation. The patient lived only two days. His second case, in which three springs were introduced, lived ten days, and excellent clots were found around the metal. His first case, in which only one spring was used, lived two months, was improved, and presumably the wire was imbedded. In Domville's case fourteen inches of iron wire were found imbedded in firm clot, two weeks after its introduction into an aortic aneurism, the patient dying of ruptured sac. Dr. Ransohoff reported last year a case of large aneurism at the root of the neck, into which he put at two sittings ninety-eight and ninety-six inches of silver wire. The case was hopeless from the first; however, the patient survived over four weeks. Autopsy showed the "coils of wire imbedded in recent and old clot." In Mr. Cayley's case of large sacculated aneurism of the aortic arch, the patient survived the introduction of seventy-five feet of steel wire eighty-six days, and the "entire upper portion of the sac was filled with clot, in which the wire was imbedded." In Barwell's case (already quoted) the electricity and wire combined had caused the latter to become "surrounded by thick, firm, colorless clot, which in many places bound the wire to the sac-walls, thus strengthening them." In Prof. Loreta's famous case (reported last summer) the post-mortem revelations were very gratifying. The patient was a sailor, who had an aneurism of the abdominal aorta, the size of a small fœtal head. Laparotomy showed it to be matted to the viscera, stomach, etc., from which it was separated. Six and a half feet of silvered copper-wire were introduced through a fine canula, the point of perforation was touched with pure carbolic acid, and the wound was closed. He made an excellent recovery. Twenty days later the pulsation had ceased, and by the seventieth day he resumed his work. On the ninety-second day the aorta ruptured at the point at which the sac sprang from it. Autopsy showed that the latter had shrunk to the size of a walnut, and was completely filled with coagula of organized fibrin. The wire was found unaltered, and rolled into a globular mass within the sac.

Dr. Morse's patient, in San Francisco, a man of thirty-two years, received a blow from a coal bucket which resulted in an aneurism of the abdominal aorta, which grew for eight months, accompanied with much suffering. Loreta's operation was done, and four and a half feet of silvered copper wire introduced into the sac through the laparotomy wound. The tumor was the size of two fists.

The patient's subsequent temperature remained below 101°.

On the ninth day the left femoral artery became plugged, whether from embolism or endarteritis cannot be said. Pulsation returned in it, however, in the fourth week. The tumor shrank to a small nodule, and so remained without bruit. The patient left the hospital less than eight weeks after the operation—apparently cured.

Dr. Lange reported a case to our Society quite recently, in which he obtained an autopsy. He had inserted thirty feet of wire into an abdominal aneurism. The patient survived twelve days. The specimen showed the wire imbedded, to a large extent, in firm clots against the wall, but free in some places in the current. It is reasonable to believe that it would always be buried in laminated clot, if left for a while.

As bearing upon this point, I would note that Schrötter, of Vienna, two years ago inserted twenty inches of Florence-silk into a large aneurism, and four days afterward thirty inches more. The patient died in the third week, of pulmonary œdema, and the autopsy showed the silk in coils entirely enclosed in laminated clot. In Bryant's case of popliteal aneurism, the horse-hair was enveloped (to use his words) in "huge laminated clots." The inflammation of the sac-wall probably plays no small part in aiding solidification. I feel convinced that it is desirable to provoke some inflammation. In my patient there was a decided increase of local temperature in the outer part of the sac, with slight œdema of the subcutaneous tissue, and hardening of the sac. This followed on the second day, after one hundred feet of catgut had been introduced. The continuous application of an ice-bag entirely controlled the inflammatory action. In Schrötter's case of silk introduction, it is reported that "intense œdema appeared in the vicinity of the sac from its inflammation," the virtue of which was apparent, in the imbedding of the silk, as was found three weeks later at autopsy.

Finally, I would review the part that electricity may play in the combined treatment. We have but three cases in which the sac was subjected to electrolytic action through an extensive wire coil within it. Barwell used a current of ten milliampères, Dr. Roosevelt about twenty-five, and I one hundred. The patients experienced no pain or discomfort whatever. The current was passed for a period of from half an hour to an hour and ten minutes. In my case the current was reversed during the latter half hour, so as to bring the negative pole within. No change in the patient's condition could be perceived, and no gas could be discovered in the sac, as in some cases of electro-puncture, where it became tympanitic for a short time, without harm.

The promising statements of Cinicelli and others about the value of electrolysis in aneurisms have seemed to many delusive. The small amount of coagulation that takes place around a fine needle, is

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perhaps of less value than the irritation of the sac. Therefore, it seems reasonable to my mind that if we tangle a mass of fine wire so that it will reach every part of the sac, and then cause a deposition of clot on it by electrolysis, we do more justice to the method. Cinicelli claims that no cure of aneurisms takes place after electrolysis without inflammation of the sac.

Occasionally a case succeeds, as one reported by Dr. Simpson, of Manchester, in 1881; an aortic aneurism that had eroded the rib and threatened to rupture, continued well five years after repeated electro-puncture.

As regards the strength of the current to be applied, experience only will say. De Watteville thinks that twenty or thirty milliampères for each needle are sufficient, others five or ten. But, when a large wire surface transmits the current, it is probable that fifty or one hundred are not too strong.

CONCLUSIONS.—It is evident that we need many accurate scientific observations before we can speak definitely of the value of Barwell's method. One may say that Moore's treatment, by simply placing wire in the sac, has not yet been tried in any case that was not already hopeless and in the last days of life. The same may be said of Barwell's; yet the evidence warrants a continuance of its trial. It is not a coincidence that cases show a decided amelioration of symptoms.

It has been proved that there is a deposition of clot; sometimes so abundant as to cure, as in the cases of Loreta and Morse. The fine wire is so yielding that it may be compressed by the aneurismal contraction into a small fraction of its bulk, without exerting much expansile reaction against the wall; and it is probable that an hour's electrolysis so far weakens it, as well as roughens its surface, that it is quite prepared for the deposition of the clot and the shrinkage of the sac.

The operation is not in itself perilous; no deaths have occurred from its performance. The subsequent much-desired inflammation of the sac was easily kept under control by ice-bags in every case.

The principle does not seem faulty, and its application should not be abandoned or condemned, until much more extended trial has been given to it.

CASES.—*Moore:* Med.-Chir. Trans., xlvii. p. 129. *Domville:* Stimson, Ref. Hand-book. *Bacelli:* Bul. gén. de Thérapie, 1878, vol. xcv. p. 262. *Bacelli:* Brit. Med. Journ., 1885, vol. i. p. 1256. *Murray:* Brit. Med. Journ., 1872, vol. i. p. 596. *Rubio:* Brit. Med. Journ., 1886, vol. i. p. 395. *Loreta:* Mem. Royal Acad. of Bologna, vol. vi.; Brit. Med. Journ., 1885, vol. i. pp. 668, 955. *Ransohoff:* THE MEDICAL NEWS, May 29, 1886, p. 597. *Barwell:* Brit. Med. Journ., 1886, vol. ii. p. 675. *Cayley:* Brit. Med. Journ., 1886, vol. ii. p. 395. *Lange:* THE MEDICAL NEWS, November 20, 1886, p. 582. *Morse:* THE MEDICAL NEWS, March 5, 1887, p. 264. *Roosevelt:* THE MEDICAL NEWS, April 9, 1887, p. 398. *Abbe:* THE MEDICAL NEWS, April 9, 1887, p. 398.

EXCISION OF THE LARYNX AND PHARYNX.

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D. L. WHITE, male, aged fifty-eight years, was brought to me by Dr. Eisenberg, of Norristown. The patient complained of impaired or feeble voice, with some hoarseness. He had previously been under the care of Dr. J. Solis-Cohen and quite recently had consulted Dr. Seiler, both of whom had recognized the presence of a growth involving the upper portion of the larynx, and believed to be a sarcoma. At the time the man visited me the neoplasm could be distinctly seen extending down to, but not below the vocal cords. As the growth appeared to be very vascular, it was not deemed proper to pinch off a fragment for microscopical examination. Believing the tumor to be a sarcoma, and in view of its steady encroachment upon the glottis, excision of the larynx was advised. The patient was admitted to the University Hospital on January 31, 1887, and the operation was performed February 2.

An incision was carried from the hyoid bone to the middle of the suprasternal fossa, over the median line of the neck. The isthmus of the thyroid body being large, was tied on each side and divided between the ligatures, after which the sterno-hyoid, sterno-thyroid and thryo-hyoid muscles were detached from their insertions and dissected away on each side, thus exposing the larynx, and two or three of the upper rings of the trachea, anteriorly and laterally. A number of vessels were tied, branches of the superior and of the inferior thyroid arteries. The trachea was now separated sufficiently from the œsophagus to admit the passage of a grooved director, when the former was severed by a probe-pointed bistoury carried between the cricoid cartilage, and its first ring. A rubber cork, through which was passed a siphon tube, was next introduced into the trachea, filling up accurately the lumen of the air passage, and was secured in place by a stout thread. The work of separating the larynx from the pharynx was next effected, chiefly by the handle of the scalpel, and taking along with the perichondrium the origin of the two constrictor muscles. A transverse cut through the thyro-hyoid membrane completed the work of excision so far as the larynx was concerned.

Unfortunately, at this stage of the operation it was found that the growth had invaded the pharynx, and to such an extent as to require its entire removal, saving a very narrow strip of its posterior wall. The vessels divided in this last stage of the operation being secured, the wound was well washed with a solution of bichloride of mercury (1 to 1000), covered with carbolized gauze and a pledget of salicylized cotton. Before the last of the dressing was made, it was observed that the secretions from the mouth and fauces ran down in a continuous stream, through the wound. Fearing that these secretions might find their way through the loose tracheal fascia into the mediastinum, a sponge, rendered thoroughly aseptic, with a cord attached, was passed through the upper part of the wound into the fauces, in order to receive the discharge. This was removed and replaced by others from time to time, fulfilling somewhat imperfectly the object in view.

The patient was now carried to his room, apparently suffering very little from the effects of the operation. The canula was covered with antiseptic

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gauze, and the temperature of the apartment maintained as nearly as possible at 70°. Directions were also given to the nurse to keep the tube cleared of all accumulations of mucus, and to administer at proper intervals through the œsophageal tube, from half a pint to a pint of peptonized milk. The patient passed a fairly comfortable night, sleeping at intervals from twelve to six A.M.; temperature, 99⅘°.

Feb. 3. Patient comfortable, pulse 100, respiration 24. Some trouble experienced from irritability of stomach, the milk regurgitating through the tube, in consequence of which rectal alimentation was directed. In the course of the evening an accident occurred which came well nigh proving fatal. A quantity of fluid was suddenly rejected by the stomach, a portion of which ran into the canula causing asphyxia. Fortunately the surgical resident, Dr. Westcott, was near at hand and promptly rendered the necessary relief.

4th. Patient exhibiting some signs of exhaustion, considerable restlessness, respiration 34, temperature 104°. Suppositories of quinia ordered and one ounce of whiskey every three or four hours.

5th. Increasing exhaustion, pulse 150 and feeble, temperature 106°, respiration increasingly frequent and shallow; died quietly shortly after nine o'clock.

REMARKS.—As the friends would not allow an autopsy, it was impossible to determine satisfactorily the cause of death, whether due simply to exhaustion from heart failure, the man having been, it was said, addicted to great excess in the use of stimulants; or what is equally probable, from pulmonary congestion, an occurrence which in frequency stands at the head of the list of causes giving rise to death after excision of the larynx. Just what the relation between the operation and the succeeding pneumonia, so common, is, has not been definitely settled in my mind. It may be septic, or it may be, as alleged by some, attributable to the unavoidable injury done to the branches of the recurrent laryngeal nerves. The danger from septic causes must be greatly increased when it becomes necessary to remove the pharynx along with the larynx, as the discharges from above, instead of being conducted into the stomach will accumulate in the sulcus at the top of the chest in spite of every precaution to the contrary.

Were the operation to be repeated, I should certainly perform a preliminary tracheotomy, allowing some time to elapse before attempting the excision.

The tumor removed proved to be a tubular epithelioma, and not a sarcoma, as it was thought to be at the time of the operation.

THE LOCAL TREATMENT OF DIPHTHERIA.[1]

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THE opinion seems to be gaining ground in this country that diphtheria is primarily a local disease, in most instances; this is the belief of Wood and Formad in their able report made to the National Board of Health, in 1882. The authors of this report, aided by the previous investigations and experiments of Curtis and Satterthwaite, in this city, made many original microscopic examinations. They state that they did not find bacteria in the blood and tissues of mild cases, but only in cases that reached a certain degree of intensity, and the inference which they seem to draw is that in these mild cases the disease may remain local. But I believe, whether diphtheria be primarily local or not, that when the physician is summoned, he ordinarily has a constitutional malady to treat. The exudate upon the faucial surface, containing the bacteria in countless numbers, and in great activity, is deeply seated, and is in immediate relation with the blood-vessels, so that these organisms must enter the circulation in abundance. We know, too, that in severe diphtheritic attacks nephritis frequently begins within twenty-four hours, showing that the blood is already contaminated. Moreover, when there is an incubative period of six or seven days, it is very improbable that the specific principle remains that time upon the surface where it is received, in a state of quietude. It must be in the blood, and be gradually poisoning the blood, during this period of incubation.

But whether diphtheria be primarily local or constitutional, we all acknowledge the importance of local treatment. In selecting the local remedies, I believe it should be a principle to guide us, that nothing should be used which irritates, for if we employ irritating measures, and increase the redness and inflammation, we are liable to increase the severity of the local ailment, and, I think, the amount of exudation. Modern physicians, who have a better knowledge of the nature of diphtheria, now perceive that the older physicians, as Bretonneau and Trousseau, were misguided in their judgment, and that they did harm when they applied powerful acid and other agents to the faucial surface in the belief that they burnt away the disease, nor should we, in my opinion, attempt to remove the pseudo-membrane by forcible means, since we are able to destroy by local treatment, which is not severe, all the micro-organisms in it, and render it inert. The application to the fauces should be made either by the hand-atomizer, a camel-hair pencil, or a small syringe. The sponge of the probang is too rough and is likely to cause forcible detachment of the pseudo-membrane, irritate the surface, and, perhaps, produce more or less hemorrhage.

Many antiseptic and disinfecting mixtures which fulfil the indications mentioned above, have been recommended for treatment of the fauces. For many years I have used the following, which, though unpleasant to the child, does not irritate, and it readily penetrates the diphtheritic exudate, disinfecting it and rendering it an inert mass; it immediately destroys the life, and puts a stop therefore to the movements of the microörganisms, not only in the pseudo-membrane, but in the muco-pus which bathes the pharyngeal surface. This effect I have ascertained by microscopic examinations.

[1] Remarks made on Dr. Billington's paper before the New York Academy of Medicine, March 15, 1887.

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℞.—Acidi carbolici . . . . gtt. x.
Liq. ferri subsulphat. . . . ʒiij.
Glycerinæ . . . . . ʒij.—M.

It is conveniently applied by a large camel-hair pencil, two or three times daily, or in malignant cases oftener. It is a powerful astringent, and always after its application a considerable quantity of pseudo-membrane and congealed muco-pus is brought away, and it therefore gives greater satisfaction to the parents than almost any other application. Diluted by an equal quantity of water, it may be used in the atomizer. Perhaps the following formula is as beneficial as any for more frequent use:

℞.—Aquæ chlorinæ . . . . ʒj.
Sodii bicarbonat. . . . ʒss.
Mellis } . . . . āā ʒss.
Glycerinæ }
Aquæ calcis. . . . . ʒiv.—M.

This should be used in the hand-atomizer every hour or second hour, and if the instrument work well, I have found three or four compressions of the bulb sufficient. As alkaline solutions dissolve pseudo-membrane, the solvent action of the lime-water is, of course, increased by adding the sodium bicarbonate. Trypsin may be employed in the mixture, since its solvent action, unlike pepsin, is not impaired by the alkaline medium, but it is expensive, is not soluble, and must be added sparingly so as not to clog the atomizer. In the declining stage, when the amount of pseudo-membrane is diminishing, the atomizer need not be used so frequently.

Nasal diphtheria is properly receiving more attention than was bestowed upon it a few years ago. In not a few instances the first manifestation of diphtheria is in the nostrils, and I have noticed that in many instances it is not diagnosticated, and is supposed to be a simple coryza until three or more days have elapsed, so that the proper treatment is not employed until the pseudo-membrane begins to appear on the faucial surface, or around the entrance of the nostrils, which may not be until four or five days have elapsed.

Nasal diphtheria is a dangerous form of the disease, because septic absorption is very liable to occur from the nature of the tissues involved, so that early and frequent local treatment is important. The Schneiderian membrane is midway in sensitiveness, as it is in position between the conjunctiva and pharynx, so that a wash which is proper for the fauces, might be too irritating for the nostrils. I do not employ the potassium chlorate for the nostrils, because it is in my opinion too irritating. We must prescribe a wash that does not possess irritating properties, and is at the same time actively antiseptic and disinfectant. The following is the formula which I employ:

℞.—Acidi borici . . . . ʒij.
Sodii borat. . . . . ʒij.
Sodii chloridi . . . . ʒj.
Aquæ . . . . . Oj.—M.

Any wash prescribed for the nostrils should always be used tepid, and it is important that it be made with the proper instrument. If the child lies upon its back, the application may be made with a small glass or gutta-percha syringe, a bulb with a stem, or even a large straight medicine-dropper. With the use of such an instrument the patient must lie on the back, for if he do not the upper nasal cavity will not be reached. If the point of the instrument be too sharp and liable to injure the Schneiderian surface by the movement of the head, this result may be prevented by drawing India-rubber tubing over the tip. The preferable instrument, however, seems to be the hand atomizer, with a bulbous tip, and six or eight forcible compressions should be made at each sitting.

I am convinced that much of the success in treating the different forms of diphtheritic inflammation —nasal, pharyngeal, and laryngeal—by the spray depends on the instrument used. Some of the instruments have too weak a bulb, some become quickly clogged and are soon out of order. Many young children resist their use, and when the fauces are treated most of the spray is received upon the tongue. The shops sell one instrument having a bulbous gutta-percha tip, half an inch in diameter, which serves as a tongue depressor, and which throws a heavy spray. It has the name Millard's, and if it continues to be made with a strong firm bulb, the pharynx, nostrils, and larynx can be satisfactorily treated by it. The tongue being depressed by it does not intercept the spray. In spraying the larynx, of course, compression should be made at each inspiration.

The following is probably as safe and useful a prescription as any for the treatment of the nostrils, and it should be used in ordinary and severe cases as often as every second hour. Perhaps, salicylic acid might be profitably substituted for the boracic.

℞.—Acidi borici . . . . ʒj.
Sodii borat. . . . . ʒij.
Sodii chloridi . . . . ʒj.
Aquæ . . . . . Oj.—M.

The local treatment of laryngeal diphtheria or diphtheritic croup is so important, and so much is to be said in reference to it, that it cannot be expected to be a subject for discussion this evening, but I may call attention to the importance of observing at each visit whether there be the least change in the voice of the patient, for I am certain that if the proper alkaline inhalations be employed as soon as the least hoarseness is apparent, when there is only redness of the laryngeal surface, or, perhaps, a thin pseudo-membranous film, croup may, in many instances, be prevented.

Before closing, I wish to caution members of the Academy in regard to the employment of pilocarpine in the local treatment of diphtheria. In some of the medical journals pilocarpine administered internally is recommended for its supposed local action, in producing an abundant mucous secretion, which aids in detaching the pseudo-membrane. I have witnessed its employment for this purpose, with the most disastrous consequences. The action of the heart became feeble, the bronchial tubes and the alveoli were soon filled by the secretion or serous exudation, extreme dyspnœa suddenly occurred, and

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the patient, who a few hours before was in a comfortable state, perished with such symptoms as occur in extreme œdema of the lungs. Useful as is pilocarpine in nephritis, it does not appear to be the proper remedy in the active period of diphtheria, and it use seems to be extremely hazardous.

AUTOMATIC PISTOLSHOT AFTER SUICIDAL WOUND OF BRAIN, AND ITS POSSIBLE MEDICO-LEGAL RELATIONS.

BY ALFRED A. WOODHULL, M.D.,
SURGEON U. S. ARMY.

P. C. was found in bed about 9.30 A. M., January 27, 1887, unconscious, with a penetrating pistol-wound near the right parietal protuberance, from which there had been profuse hemorrhage. He was lying on his back with all his limbs perfectly extended, and his right hand tightly grasped a self-cocking revolver (calibre 32) with the finger on the trigger. This was so firmly held as to require some force and patience to disengage it. Two chambers of the pistol were discharged, the empty shells remaining. At the autopsy the fatal bullet was found to have passed transversely and slightly upward, perforating both lobes of the cerebrum and contusing the inner table of the opposite parietal bone. The hair near the wound was singed. The other bullet had passed through the ceiling at a point about two feet to the left and twelve feet beyond the head as the body lay. The ceiling was seven or eight feet higher than the bed, and it had been struck at an angle of about twenty-five degrees with its plane.

The question arises, Which shot was fired first? Upon one hypothesis, that in the ceiling would be a trial shot to determine whether the weapon was in good working order. Upon the other, it was due to the unconscious and automatic pressure of the finger upon the trigger, as the arm, by its own muscular action, was straightened along the body. I believe this latter to have been the case; and if it were so, it is conceivable that another person present might have been fatally wounded by this second shot. In that event the discovery of two bodies might have led to the suspicion of murder followed by suicide, while in fact there would have been suicide followed by involuntary manslaughter.

The mechanism of the self-cocking pistol, by which continuous pressure upon the trigger both cocks and discharges the weapon, must be borne in mind in discussing the case.

FORT LEAVENWORTH, February 21, 1887

QUANTITATIVE VARIATIONS IN THE GERM LIFE OF POTOMAC WATER DURING THE YEAR 1886.

BY THEOBALD SMITH, M.D.,
OF WASHINGTON, D. C.

THE value of the so-called biological analysis of drinking water—the quantitative and qualitative determination of bacteria present—is still very unsettled. Recent investigations certainly have not contributed toward a clearer understanding of the problem, but have made it more complex. Meanwhile, statistical determinations cannot be amiss in aiding investigators in interpreting their own results. It is from this point of view that the following statistics are published without any attempt at estimating the quality of the water therefrom.

The water was drawn from a faucet in the basement of the Agricultural Department building, which was constantly in use, so that there could have been no stagnation of water in the smaller pipes. It was immediately examined according to the method of Koch—two gelatine plates being always made from the same sample of water. This was measured with flamed glass pipettes, without being diluted. The pipettes[1] were graduated by determining accurately how many drops of distilled water were required to make 1 c. c. If 51 drops were necessary and only 8 added to the gelatine, $\frac{8}{51}$ c. c. was considered taken. This method is far simpler than the one which insists upon dilution, unless the number of bacteria be very large.

From 0.1 to 0.5 c c. of water was added, according to the probable number of bacteria present. The culture medium was the well-known beef infusion peptone gelatine containing 10 per cent. gelatine. There was always a close agreement between the two parallel plate cultures made from the same sample.

As to the results of the year's observation we first observe from a glance at the table that the number is highest in winter, in spite of the fact that heat greatly favors and cold checks multiplication.

TABLE GIVING THE MONTHLY AVERAGE NUMBER OF BACTERIA FOUND IN ONE CUBIC CENTIMETRE OF POTOMAC DRINKING WATER DURING 1886.

	Number of observations.	Average.	Rain fall (inches).
1886.			
January	2	3774	3.46
February	4	2536	2.79
March	5	1210	4.16
April	4	1521	4.21
May	3	1069	7.77
June	2	348	4 98
July	2	255	8.42
August	1	254	1.03
September	2	178	1 04
October	3	75	2.31
November	1	116	3.69
December	2	967	3.07
1887.			
January	3	882	2.19

This anomalous condition is not so difficult of explanation. In the winter the water as it reaches the city is more or less turbid, and, when shaken, clouds, composed of very minute particles, are seen. These

[1] The pipettes are easily made by drawing out, in the flame, the middle point of a piece of glass tubing about 15 cm. long and 6-7 mm. in diameter, until a narrow tube is formed ¾ to 1 mm. in diameter and about 30 cm. long. This is broken in the middle to make two pipettes. If the capillary tube be drawn out to the above size, each drop will equal from $\frac{1}{40}$ to $\frac{1}{30}$ of a c c., the exact size being determined for each pipette. Into the other end a plug, preferably of glass wool, 2 to 3 cm. long, is introduced and the bulb of a medicine dropper drawn over the tube to give the necessary aspirating force. Immediately before use the pipette is thoroughly flamed, beginning with the glass-wool plug while it is held with the bulb between the fingers. Care must be taken lest the heat be too great and change the form and size of the orifice. If any doubt exists as to this point, it is best to graduate the pipette again *after* use, and with the sample of water to be examined if the latter should vary much in its specific gravity from distilled water.

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will pass through ordinary filter paper, and when gathered together as in distilling water, the residue is made up of reddish earth. This turbidity, most pronounced in winter, gradually disappears toward summer when the water becomes very clear and limpid. The number of bacteria varied with the change in turbidity, being highest when the suspended matter was most abundant. This fact impressed me so strongly after a number of observations that it became possible to anticipate quite accurately the number of bacteria present by looking at the water in the tube with transmitted light.

It seemed reasonable to conclude that whatever agency brought the suspended earth also brought the bacteria, and that the earth contained the bacteria. Throughout the winter of 1886 I noticed that after heavy rains the turbidity increased quite suddenly, this fluctuation, of course, producing a corresponding rise and fall in the number of bacteria. The rain, washing down the soil from the surface drained by the tributaries of the river was thus the cause of the turbidity. But was there any relation between rainfall and the number of bacteria? Through the kindness of the Signal Office I obtained the data given in the third column of the table. Comparing the second and third columns, the relation is certainly not on the surface. The heaviest rains occurred in July, but the number of bacteria did not rise perceptibly and no turbidity appeared. The only explanation which suggests itself is that which must be sought in the changed condition of the surface of the soil in winter and summer as regards vegetation. The precipitated water is caught by the foliage of trees, by the grass and herbage, which clothes the soil everywhere. The soil itself is at the same time more firmly bound together by the vegetation itself. In winter all this is changed. The absence of vegetation leaves the loose soil ready to be washed into streams by rain and melting snow, carrying with it the bacterial vegetation.

The majority of bacteria carried into the river are, no doubt, harmless, but what is to prevent the infectious microörganisms of typhoid and other diseases from being washed down and carried into our houses with the suspended matter? The danger is thus not constant but only occasional. The number of bacteria may have no direct significance, but it is certainly an index of the possible danger. It is safe to assume that Potomac water free from suspended matters contains from 50 to 200 bacteria in 1 cc. This will, no doubt, be found a low average for unfiltered river water when more statistics have been collected of other streams, whose water is used to supply towns and larger cities.

No qualitative examination of the different kinds of bacteria was made for want of time. Liquefying bacteria were constantly present, when the bacteria were few in number, as in summer, as many as 50 per cent. were liquefying; so that counting was somewhat difficult and many plates were lost by the confluence of the large colonies and the total liquefaction of the gelatine layer. When the number was very high, as in winter, the liquefying forms did not increase in the same proportion, but formed only 5 to 10 per. cent. of the whole. These observations led to the inference that they are constant inhabitants of the water, and that attention must be directed to them, first of all, if individual forms are to be more closely examined.

MEDICAL PROGRESS.

A New Treatment for Incised Wounds of the Throat Penetrating the Air-passages.—Dr. D. S. Young, surgeon to the Cincinnati Hospital, describes his method of treatment as follows in the *Lancet-Clinic* of March 5, 1887.

The method we have adopted to secure a safe and speedy relief in these cases, after the hemorrhage is controlled and the injuries to the internal appendages attended to, is to proceed and close the wound both internally and externally, so as to render it impervious to air and fluids. This is accomplished by uniting the incision in the windpipe with catgut sutures passed through the cartilage, including the mucous membrane; they should be placed one-eighth of an inch apart and firmly tied, and the ligature cut close to the knot.

When the air-passage is completely or extensively divided, two or three silk sutures might be placed one on each side and one in front, to sustain better the parts in position, as they will not be affected by moisture and become relaxed as the gut is liable to be. The external wound is cleansed, its margins brought together and secured with pins, or wire sutures. The head is brought slightly forward, and held by a cap with tapes fastened to a band around the chest. In cases of violent delirium, Christopher's plaster-of-Paris dressing is invaluable, as it secures perfect rest to the parts, and leaves the throat freely exposed. No especial dressing is required further than occasionally sponging the surface. The patient speaks and swallows immediately after the wound is closed, but should be restrained as much as possible. The external sutures can be removed after five or ten days. The internal catgut and silk are left undisturbed and are absorbed, or thrown off into the windpipe. No irritation or spasmodic coughing has been excited by their presence.

Xylol in Variola.—Oetvös, of Budapesth, has selected from 465 cases of smallpox 315 of severity, with whom he used xylol and obtained excellent results. The general anæsthetic effect of xylol was especially noticeable. The contents of the pustules coagulated in three or four days in masses which showed, when incised, a fibrinous base, with proliferation of the Malpighian layer. The pustules were rarely confluent, and only in the most severe and fatal cases. The drying of the pustules was without complications; scars formed very rarely; digestion was but little disturbed. The expired air had an odor of xylol, which produced an agreeable deodorization. An antipyretic or antiseptic effect was not observed. Fever generally ceased on the twelfth day; recovery was accomplished in thirty-two days; death, when it occurred, was on the eighth day.

The remedy was given in wine (added *guttatim*), 6 times daily, for 12 days. Adults took from 30 to 45 minims in 24 hours, the total amount taken reaching 6 drachms. Children took the drug readily in wine;

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adults used fruit essences and aërated waters. The following is a useful formula:

℞.—Xyloli puri . . . . grs. 45.
Aq. menth. pip.,
Aquæ destill. . . . . āā ʒ12½.
Syrup. cinnamoni,
Mucil. gummi arab. . . āā ʒ2½.
M. D. S.
Sig.—Tablespoonful every two hours.

The mortality, including 37 cases of hemorrhagic smallpox, was 22 per cent.; which the writer considers a good result, and due to the drug used.—*Therapeutische Monatshefte*, March, 1887.

Xylol is obtained from the oily liquid separating from diluted crude wood-spirit, and from the light oil of wood tar or coal tar. It is a thin, colorless, oily liquid, resembling benzol in odor, has a burning taste, and is insoluble in water, but dissolves readily in alcohol.—*National Dispensatory*.

THE TREATMENT OF COLDS.—DR. WHELAN, in *The Practitioner* of March, 1887, writes as follows;

The usual "coddling" treatment of colds, except in the very old, very young, or very delicate, is a mistake. A person suffering from a catarrh should certainly be warmly clothed and avoid draughts; but by shutting himself up in a warm room, by taking warm air baths, and lowering medicines, he only promotes the development of the exciting cause of the affection.

"Feed a cold, starve a fever." There is a deal of wisdom in the first part of this advice. A person with a catarrh should take an abundance of light nutritious food, and some light wine, but avoid spirits, and, above all, tobacco.

Now as to medicines. All depressants should be avoided. For some time I was in the habit of taking a mixture recommended by Dr. Jukes Styrap, composed of minute doses of morphine, antimonial wine, and potassium citrate. This, beyond doubt, always subdued the acute inflammatory stage, but I have no hesitation in saying I was depressed by its action, and rendered liable to relapses and renewals. Personally I have found the large dose of an opiate in the early stages, as extolled by Sir Thomas Watson and Dr. George Johnson, very unpleasant, and of but little use.

Trying to avert an attack by a large dose of potassium iodide failed in my hands. The bromides were useless through all stages. Antiseptic inhalations and spraying afforded temporary relief from the distressing symptoms, but failed to cure.

Belladonna, quinine, and arsenic I have found useful when given separately—not so much in large as in small doses. When combined I believe them to be nearly specific—prophylactically and therapeutically, if I may so speak,

The formula I invariably use is as follows:

℞.—Quininæ sulphatis . . . gr. xviij.
Liquoris arsenicalis . . . ♏xij.
Liquoris atropinæ . . . ♏j.
Extractæ gentianæ . . . gr. xx.
Pulveris gummi acaciæ, q. s. ut fiant pilulæ xii.
Sig.—One every three, four, or six hours, according to circumstances.

If these pills be commenced in the early stage of a common cold—*i. e.*, when the affection is as yet confined to the nose and pharynx—the affection will be nipped in the bud. At starting one pill should be taken every three or four hours, and later on every six. If a catarrhal subject has a box of these pills always at hand, he has, I believe, a weapon wherewith to meet and defeat his enemy. The longest time I have seen a cold last whilst the patient was fairly taking these pills was three days. How the remedy acts I do not know, except it be as a powerful nervine and general tonic, bracing the patient's tissues up to resist the attacks of the exciting cause of the affection.

TINCTURE OF IODOFORM.—PROS gives the following formula for this tincture, which is convenient for use and may be readily preserved:

Iodoform	1 part.
Potassium iodide and glycerine (each)	70 parts.
Alcohol (at 36° C.)	200 "

The iodoform and iodide are finely powdered, the glycerine is added, and the whole mixed in a homogeneous mass; the addition of the alcohol makes a complete solution.—*Journal de Médecine*, March 6, 1887.

STATISTICS OF CASES OF EXTRACTION OF CATARACT BEFORE AND SINCE THE INTRODUCTION OF COCAINE.—DR. E. T. COLLINS, of the London Ophthalmic Hospital, writes as follows in the *Hospital Reports* of that Institution for January, 1887:

So much has been said and written of late on the evil effects of cocaine, that I think it may be interesting to make a comparison between the cases of cataract extraction occurring in the hospital during the year 1883, before the introduction of cocaine, and those treated in 1885, when cocaine made up with a saturated solution of boracic acid was used in almost all cases. In making this comparison, I have counted the number of cases of panophthalmitis, the number of cases of loss of vitreous, and the number of cases of severe iritis, with the following results:

In 1883 there were 225 cases of extraction of senile cataract: 14 suppurated, or 6.2 per. cent.; 32 cases lost vitreous, or 14.2 per. cent.; and 16 cases had severe iritis, or 7.1 per. cent. In 1885 there were 264 cases; only 3 suppurated, or 1.13 per cent.; 22 cases lost vitreous, or 8.3 per cent.; and 9 cases had severe iritis, or 3.49 per. cent.

Mr. Morton, in the *Royal London Ophthalmic Hospital Reports for 1879*, vol. ix., published the results of 146 cases of extraction of cataract occurring in 1875 and 1876; of these 8 suppurated, or 5.47 per cent.; 6 lost vitreous, or 4.1 per cent.; and 18 had severe iritis, or 12.3 per cent. These figures speak for themselves.

TOTAL EXTIRPATION OF THE UTERUS AND NEPHRECTOMY.—DR. SCHMIDT, of Cologne, relates a case in which these formidable operations were successfully performed at one sitting. The patient was forty-nine years old, and had given birth to four children, all stillborn; and the menopause had occurred two years previously. For a year she had suffered from severe,

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irregular uterine hemorrhage. Carcinoma of the cervix, involving the vault of the vagina, was detected. The uterus was removed, but the operation was rendered very difficult by abundant, cord-like adhesions between the fundus and the pelvic walls. The peritoneal cavity had to be very widely opened. On careful examination of the extirpated uterus, it was found that an inch of the right ureter had been cut away with that organ. The vagina was plugged with iodoform gauze, and the right kidney was removed through a lumbar incision. The patient made a good recovery. Dr. Schmidt states that total extirpation of the uterus is quite inadmissible, when it appears at all probable that a ureter is likely to be injured, not that the necessary nephrectomy would greatly increase the risk, but rather because the extirpation of the uterus would be of little service in such a case, as the cancerous infiltration would be extensive, and rapid recurrence would be certain. Yet, when the ureter has been injured, he thinks that nephrectomy is preferable to sewing the proximal end of the ureter to the vaginal walls, as this leads to inflammation and sloughing, and renders nephrectomy necessary later on. In Dr. Schmidt's case, it must be noted that the disease had distinctly involved the cellular tissue to the right of the cervix.—*British Medical Journal*, March 12, 1887.

The Treatment of Gastro-intestinal Atony.—Germain Sée prescribes as follows in *L'Union Médicale* of March 10, 1887:

℞.—Magnesiæ calcinatæ,
Cretæ præparatæ . . . āā ʒiv.
Colombo pulv. . . . . gr. xv.
Vanillæ pulv. . . . . gr. viij.—M.

Sig.—Half teaspoonful to coffeespoonful before each meal for persons troubled with gastro-intestinal atony with tympanism. In some cases it is well to prescribe in addition 5 or 10 drops of the tincture of nux vomica in black coffee after meals.

A saline purgative should be taken from time to time as required.

A "Specific for Diabetes."—At a recent meeting of the Société de Thérapeutique, M. Martineau stated that he had been treating diabetes for the last ten years, with almost invariable success, by a method which he had borrowed from a practitioner now dead. He had hitherto made no communication upon the subject, because he had wished to be perfectly certain that his conclusions were not premature. The treatment consists in the administration of a solution of carbonate of lithia and arseniate of soda in aërated water, to the exclusion of all other drinks. Besides taking this with his meals, the patient uses the same as a beverage when thirsty at other times. M. Martineau affirms that this regimen has cured sixty-seven of seventy diebetic patients he has had occasion to treat.—*Lancet*, March 19, 1887.

Preparations of Terebene.—Terebene is a derivative of turpentine produced by distillation in the presence of sulphuric acid. It is a colorless, volatile oil having a rather agreeable, thyme-like odor and acquires with iodine a dark green appearance.

It has been extensively used in chronic bronchitis, attended by fetid expectoration.

Vigier, in the *Revue de Thérapeutique* of February 15, 1887, gives the following formulæ for useful combinations of this substance:

℞.—Terebene . . . . . ℈xj.
Gummi acaciæ . . . . . ʒiij.
Aquæ . . . . . ʒxv.
Sacch. pulv. . . . . ℥iijss.
Gummi tragacanth. pulv. . . . ʒij.

An emulsion of the terebene, gum acacia, and water is to be made, to which should be added the sugar and gum tragacanth previously mixed. A homogeneous mass should be made of the whole, which is to be divided into 100 troches or capsules.

The emulsion of terebene is a preparation whose decided taste is masked with great difficulty. The following disguises the sharpness of its flavor with fair success:

℞.—Terebene . . . . . ʒiv.
Gum. acaciæ pulv. . . . . ʒiij.
Aquæ . . . . . ʒxv.
Syrupi zingiberis . . . . ʒvijss.

Which may also be prepared in 100 troches or capsules.

Comparison of the Methods of Removal of Cataract with and without Iridectomy.—Dr. H. Knapp, of New York, writes as follows on this subject in the *Archives of Ophthalmology* for March, 1887:

If we compare the simple extraction with the extraction combined with iridectomy, we find as *advantages* of the former the following:

1. It preserves the natural appearance of the eye.

2. The acuteness of vision, other things being equal, is greater.

3. Eccentric vision and "orientation" (correct localization of objects in the visual field) are much better, adding a great deal to the comfort and safety of the patient.

4. Parts in direct connection with the ciliary body, such as shreds of the capsule and iris, are not so liable to be locked up in the wound and thus transmit morbid conditions to the most vulnerable part of the eye, the ciliary body.

5. It may not necessitate so many after-operations.

As *disadvantages* may be mentioned:

1. The technique of the operation is more difficult in all its parts: (*a*) The section must be larger, to let the lens pass through an aperture, the size of which is diminished by the iris lying in it; it must be more accurate to secure coaptation, and it must be more rapidly performed in order to prevent the iris from falling before the knife. (*b*) The opening of the capsule requires a deeper introduction of the cystitome into the anterior chamber. (*c*) The expulsion of the lens is more difficult, and (*d*) the cleansing of the pupillary area is much more troublesome than in the combined extraction.

2. Prolapse of iris and posterior synechiæ are more numerous.

3. It requires a quieter and more manageable patient during and after the operation than is needed in the combined extraction.

4. It is not applicable to all patients, whereas combined extraction can be used as a general method.

The Use of Uncooked Milk.—The question of the habitual use of uncooked milk which prevails is

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one which demands serious attention. Again and again have milk epidemics of typhoid fever, scarlet fever, and diphtheria shown conclusively how severely the incidence of the disease in question has been felt upon those using uncooked milk, as opposed to those taking milk only after it has been boiled or otherwise cooked. At one time it was thought that the matter involved only the question of the cleanliness of the dairy, and the freedom of those engaged in the management from communicable disease; and the mere fact of milk coming from country dairies has been held to be sufficient guarantee of its wholesomeness. As a matter of fact, our experience goes to show that the danger is at its greatest according as dairies are situated in the more remote and rural localities; for it is precisely in scattered rural areas that first cases of ill-defined sore throat and other affections in the families of those having to do with cows and milk are most likely to pass unnoticed. But recent experience has shown that disease in the human subject, whether unrecognized or concealed, is not the only—perhaps not the greatest—danger that has to be contended with in connection with our milk services. It has now been shown that the cow herself may suffer from a disease which at present is rarely, if ever, regarded as of any importance by dairymen, and which may give to the milk, at the actual moment of entering the pail, the power of producing scarlet fever in those who consume it in its raw state. Just as the excellent arrangements which have been made for the medical supervision of dairies must at times fail to detect certain cases of disease in the human subject, so must any veterinary or other inspection of cows fail in certain cases to prevent scarlatina-producing milk from being despatched from the dairy. We would, therefore, once again urge the importance of using milk only after it has been boiled or otherwise cooked. And for those who have not habituated themselves to the somewhat altered taste of boiled milk as a beverage, we may note that if milk be boiled immediately after its delivery by the milkman and then be set aside in a cool place for some six hours, the taste which is sometimes objected to will be found to be almost entirely removed; and not only so, but milk so treated keeps good and wholesome for a longer period than does unboiled milk.—*Lancet*, March 19, 1887.

SCHEDE'S METHOD OF DRESSING WOUNDS.—PROF. MIKULICZ communicates to the *Przeglad Lekarski* an account of fifty cases of surgical operations which were treated by the method recommended by Dr. Schede at the last surgical congress in Berlin—viz., to allow blood to fill the wound and to lie between the lips after they are brought together, any deficiency in the quantity of blood being remedied by the use of the knife, the idea being that the blood either actually becomes organized or serves as a protection for the granulations as they are formed. The wound is covered with protective, to prevent evaporation. Professor Mikulicz's observations included six resections of joints, four amputations, six dissections, two ligatures of arteries, seven extirpations of large tumors, etc. In thirty-six of the fifty cases union took place without suppuration, in four there was extensive formation of pus, in five superficial suppuration starting from the points of the suture, and in the remaining cases pus had existed previously to the operation, and the disinfection at the time not having been complete, it continued subsequently. The general condition of the patients was highly satisfactory, even in those cases where suppuration occurred, the temperature in no case rising much above normal. The dressings were not removed or changed for at least a fortnight, sometimes not for a month. This appears to be of great advantage in the case of bone and joint operations, where complete immobility of the parts is a desideratum. Other specified advantages attributed to this plan are that wounds attended with a loss of substance rapidly fill up, and the cicatrices that form are peculiarly soft and smooth. Professor Mikulicz does not find, as Schede did, that the existence of silver sutures in osseous lesions has any unfavorable influence on the cicatrization of the wound. He remarks that it is important not to bind the external dressings too tightly to the wound. —*Lancet*, March 19, 1887.

ANTI-ASTHMATIC CIGARETTES.—HIRTZ, in *L'Union Médicale*, of February 24, 1887, gives the following prescription for cigarettes to be smoked to relieve the dyspnœa of asthma:

℞.—Ext. stramonii	gr. 75.
Alcohol	ʒ1½.
Tabaci foliarum	ʒ3.
Potass. iodid.,	
Potass. nitrat.	ää gr. 75.

100 cigarettes are to be made from the above.

THE INTRA-TRACHEAL INJECTION OF FLUIDS.—SEHRWALD, of Jena, summarizes his experiments as follows:

1. The perforation of the trachea of a dog with a Pravaz syringe is not dangerous, is easy, and not painful.

2. The reaction of the entry of fluids is cough. This can be diminished by warming the fluids, by narcosis, and by custom.

3. The volume of the introduced fluid may be, for a dog, 750 grains.

4. Efficient fluids are sublimate, 1 : 5000; acid bor., 5 : 100; acid salicyl., 1 : 100.

5. By varying the position, the fluid can be introduced into every part of the lung.

6. The fluid pervades the alveoli, the peribronchial region, the bronchial glands, and the kidneys.

7. The absorption by the lung is quicker than that by the tractus intestinalis, or by the subcutaneous tissues.

8. The lung can absorb in five days four times its own weight.

9. The effect of drugs is, therefore, quicker if they are introduced by the lungs than by any other way.

10. Injecting into the lung is like injecting directly into the circulation.

The author hopes that it will be possible to use this method for the treament of lung diseases.—*Journal of Laryngology*, March, 1887.

PRESCRIPTION FOR ASTHMA.—DR. CAZENAVE DE LA ROCHE has found iodide of potassium combined with cow's milk a very efficient remedy for asthma. It should be given as follows: distilled water, four and three-quarter ounces; iodide of potassium, two drachms. One tablespoonful of the solution in a cup of milk twice a day.—*British Medical Journal*, March 12, 1887.

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THE TREATMENT OF INCOMPLETE ABORTION.

THE treatment of cases of abortion when, after the expulsion of the embryo, or fœtus, the rest of the ovum, or a considerable portion of it remains in the uterus, is by no means uniform. Some practitioners employ immediate intervention, endeavoring at once to empty the uterus, using, if necessary, instruments for the purpose. Others advocate an expectant plan, content with daily antiseptic vaginal injections, waiting until signal for action is given either by hemorrhage or by offensive discharge; in either of the latter conditions delay is no longer permitted, but removal of the offending material from the uterus must be effected, and followed in some cases by intrauterine antiseptic injections.

Of course, the nearer the time of miscarriage is to that of fœtal viability, the more the phenomena are similar to, or identical with those of premature delivery, and the discharge of the placenta is effected by the same means, should interference be necessary, that are employed when delay occurs in the third stage of labor. But it is the cases of abortion occurring earlier in pregnancy, for example, from six weeks to three or four months, and which are incomplete, that furnish a sort of debatable ground as to practice. It is well to know what nature does in the large majority of these cases. Where rest and proper precautions are taken, the offending body is expelled usually within a few days, the interval rarely being a week or two, and no injurious consequences are observed. In quite exceptional cases there is no history of any expulsion, either spontaneous or artificial. Thus, in conversing with one of the most eminent obstetricians as to the treatment of incomplete abortion, he stated that he neither advised nor practised active intervention, and then, as illustrative of his views upon the subject, stated that several years before his wife had such an abortion at three months, and there was no interference; the retained placenta and membranes never made their appearance, and yet her convalescence was prompt, and her health had remained subsequently perfect. Further, occasional cases of either severe hemorrhage, or of offensive flow and elevation of temperature, sometimes preceded by a chill, though this is most frequently absent, do occur, and, as we have previously said, demand prompt and active intervention. These are the cases which are adduced by the advocates of immediately emptying the uterus, if the abortion be incomplete, as an argument for their practice, and against expectation. But they forget the much larger number of incomplete abortions treated by the expectant plan where no such accidents occurred; and they forget, too, that the advocates of expectation would be just as active in intervention as they, in such small minority of cases presenting the symptoms just mentioned, and that the results are almost invariably favorable.

In further considering this subject, we desire to call attention to the method pursued by CHÉRON, as given in the February number of the *Revue Medico-Chirurgicale des Maladies des Femmes*, and to the practice of TARNIER as presented in his work upon obstetrics, the second part of which has recently been issued. Chéron advises, in case the placenta be retained, that the patient be placed upon her back, the legs flexed upon the thighs, and the latter strongly flexed upon the abdomen, for he claims that this position causes the neck of the uterus to lie in the axis of the vagina and thus in part remove obstacles to the expulsion of the placenta. The position alone often determines the discharge of the fœtal appendages. He states that it is useless to pull upon the cord, for this readily breaks, and dangerous to attempt artificial delivery with the hand or with the curette. But if at the end of twenty-four hours the expulsion fails, the patient should be put in the obstetric position, the speculum introduced, and hot water thrown upon the cervix, through which the uterus almost always contracts, and the placenta is expelled. But if this method fails, intrauterine galvanization is employed, the negative pole being introduced into the cervical canal, and the positive pole connected with a large metallic plate, covered with chamois, placed upon the hypogastrium, and a current of fifteen to twenty milliampères employed, the current being made regularly intermittent. The uterus very soon contracts, and complete expulsion of the fœtal appendages results. It is asserted that the employment of these means, which are inoffensive and which every practitioner can use, never fails.

Tarnier does not advocate immediate interven-

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tion, and he sustains his position by the results of cases treated according to the expectant plan at the Charité and the Maternité. Twenty-two cases were under observation at the former, the placenta being retained after the fœtus was expelled, and hemorrhage did not occur when the former was discharged; and in three women who had incompletely aborted and been brought to the hospital with fever, the fever soon disappeared after the employment of antiseptic injections. At the Maternité there were twenty-four cases of retention, two of the women, one of whom was brought to the hospital sick, suffered from infection; all recovered except one, who died from pneumonia fourteen days after abortion. He asserts that if all untimely intervention be abstained from, incomplete abortion rarely gives rise to the complications which to-day are so much feared, especially when antiseptic injections are employed.

He next considers the treatment by forceps and curettes, and regards it as often inefficient, and sometimes dangerous; the curette, for example, acts blindly, so that the sound mucous membrane of the uterus is liable to be injured, and thus entrance of septic germs may occur. In some cases where dilatation of the cervical canal was required for the use of instruments within the uterus, very serious rents of the cervix have been made. He advises then, in incomplete abortion, simply "antiseptic toilets and vaginal injections," two or three times a day, resorting to intervention only when some complication occurs.

The expectant plan of treatment of incomplete abortion is, we believe, that which is followed by most practitioners.

OPERATION FOR EXTRAVASATION OF BLOOD WITHIN THE CRANIUM.

IN THE MEDICAL NEWS for December 25, 1885, and May 8, 1886, we discussed the subject of the proper treatment of injuries of the head followed by intracranial hemorrhage, and called especial attention to the valuable papers on this subject by Wiesmann, Krönlein, and Ceccherelli.

The opinions expressed by these surgeons, which have commended themselves to our judgment, have recently had a striking confirmation in the experience of SCHNEIDER, of Königsberg, who, in the *Archiv für klinische Chirurgie*, Bd. xxxiv. Heft 3, publishes an account of a case of punctured wound of the skull, followed by aphasia and hemiplegia, in which he trephined and removed an intradural blood-clot from an opening in the middle cerebral artery, and effected a cure.

The patient was a young man eighteen years old, who was stabbed with a knife in his left temple, and who had, almost immediately, paralysis of the right side of the face and of the right arm and leg. Four days afterward he was brought into the hospital in Königsberg. He then had a small, almost healed wound over the third frontal convolution. He was perfectly conscious, and could answer by signs, although he could not speak a word. He could and did write with his left hand, with increasing facility for several days, although he had been right-handed before. As the hemiplegia increased without febrile symptoms, Schneider attributed it to an accumulating extravasation of blood, and operated for its relief on the ninth day after the injury. He trephined the skull at the seat of the wound, opened the dura, removed a small clot, found the first branch of the middle cerebral artery spurting in the substance of the brain, seized it with forceps and ligated it with catgut. The wound was then cleansed, the opening in the dura was sutured with fine catgut, the soft parts covering the skull were also sutured, a drainage tube was inserted, and a Lister bandage was applied. The wound healed by first intention. On the third day after the operation the patient began to articulate, and in four weeks he spoke perfectly. Part of the hemiplegia disappeared more rapidly, the leg and arm recovering in eight days; but the facial paralysis was not wholly gone after a lapse of six months.

It will no doubt strike those who observe the points of this case in the light of what is known concerning the phenomena of extravasation of blood within the skull, that the suddenness of the appearance of aphasia and paralysis might have led Schneider to diagnosticate an injury to the brain beside a hemorrhage above or below the dura.

In intracranial hemorrhages, uncomplicated by an immediate injury to the brain substance, the onset of the symptoms is gradual; on the other hand, a sudden aphasia or paralysis indicates that the brain substance itself has been injured. This might have been recognized at once in the case just described, and the fact that it was not is the only error we note in connection with it. The diagnosis of a persistent bleeding was in accord with our present knowledge of injuries of the cranium, and was abundantly corroborated by the disclosures and the results of Schneider's brilliant operation.

UNTOWARD EFFECTS OF COCAINE.

THE varied and constant use of the hydrochlorate of cocaine by almost every practitioner of medicine renders imperative attention to the fact that this drug may act as a poison, since a very large number of well-authenticated cases of this character are now on record. While almost every reader of the current medical journals can recall the report of some case in which serious symptoms asserted themselves, the literature of the subject is so scat-

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tered that little attention has been given to it. Within the last few weeks, however, quite a large number of cases have been recorded in various medical periodicals, especially in Great Britain.

One of the first things which strikes the reader of these reports is the fact that no particular line of symptoms appears to be characteristic, and that the doses reported as producing toxic symptoms vary even more than the unlooked-for results themselves.

In England, where the practice of using cocaine hypodermatically for the purpose of producing local anæsthesia seems to be carried on much more fully than in this country, surgeons have reached the most varied conclusions as to the dose which may be safely given in this manner. Some insist that as much as four grains may be given under the skin, while others report very serious poisonings from the use of one grain. Thus, MAGILL records the case of a strong, healthy man to whom he gave, previous to an operation for phimosis, a hypodermatic injection of one grain. In fifteen minutes the man was extremely pale, and suffered from severe præcordial pain. The pulse was very slow and intermittent, but did not resemble that present when syncope is impending; complete recovery took place in twenty minutes. More remarkable even than this is the record of seventeen cases gathered by ZIEM, of Dantzig, in 1885, in which decided toxic effects occurred simply through instillations of the drug into the eye, and in which the amount of cocaine reaching the general system must have been very small indeed.

The symptoms which assert themselves are, as has just been stated, remarkable for their variety, and they range in severity from slight systemic depression to temporary blindness, or even syncope and collapse. ROBSON records a case in which aphasia followed its use in the removal of a nasal polypus, while LITTLEWOOD has seen great loquacity, and finally syncope, follow the hypodermatic administration of sixty minims of a six per cent. solution.

The interesting question in regard to this matter is the cause of the production of these symptoms and the best method for their avoidance. Unfortunately, there seems to be no fixed rule on which we can depend, since the causes themselves are as yet not by any means understood. Naturally idiosyncrasy occurs to the mind of every one as the most likely explanation, and this idea is somewhat strengthened perhaps by the various effects produced.

Again, it may be that the sudden and enormous demand has led to the placing on the market of adulterated or carelessly prepared samples of the drug, and if this be the case the reports of toxic effects should be constantly on the decrease, since at present the supply and demand are so nearly balanced. Whatever may be the explanation, it certainly seems of the greatest importance that the profession in general be reminded that cocaine is not to be used recklessly and without proper care.

TOTAL EXTIRPATION OF THE UTERUS THROUGH THE VAGINA.

ALTHOUGH the extirpation of the uterus through the vagina for the removal of carcinoma, is a comparatively new operation, it has, in the short term of its existence, shared the advance experienced by those other operations of gynecology which have been converted, of recent years, from desperate measures to perfectly legitimate and not particularly dangerous therapeutic procedures. This point is well illustrated by the statistics of 60 operations for the removal of the uterus through the vagina, published by FRITSCH in the *Archiv für Gynäkologie*, Bd. xxix. Heft 3. The mortality of the operation itself was only 10.1 per cent. and two of the deaths were hardly to be ascribed to the operation. A still more gratifying feature of the statistics is the number of women who were much benefited, some of them perhaps cured, by the removal of the cancerous womb. Of the 53 women who survived the operation, 20 remained healthy, 2 after three years, 7 after two years, 8 after one year, and 3 after ten months. This is a most satisfactory result to have achieved in dealing with a disease which of itself is necessarily fatal, even should the relief afforded be but temporary, and unfortunately this may prove to be the case, for v. Hofmeier's statistics show that three years and more of apparent health may be followed by the return of the disease.

Such a low mortality associated with a rather formidable operation must attract attention to Fritsch's method of operating, which may be thus described: The lateral vaginal vault is first incised and the lateral attachments of the uterus severed, the tissues being transfixed by a needle and thread and securely ligated before being cut. As soon as the uterus is free to descend about two and a half inches, the anterior vaginal vault is incised, the bladder is detached from the uterus and then, for the first time, the peritoneal cavity is opened, the uterus is tilted far forward, and the broad ligaments are secured by ligatures from above and then cut through. Finally, as the last step of the operation, the posterior vaginal wall is separated from the uterus, which is then removed, usually without difficulty. Should the uterus, however, be as large as a child's head, as it was in two of the cases recorded, considerable, but not insuperable, difficulty might be experienced in its extraction.

In view of these results, Fritsch expresses the hope that the knowledge that cancer of the womb can no longer be called an altogether incurable disease may be more widely disseminated among both the laity

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and general practitioners. With such information women afflicted with this disease may seek surgical aid as soon as its existence has been discovered, before the morbid process has reached such a stage that an operation can only be undertaken as a last resort when it is merely a forlorn hope.

ETIOLOGY OF GASTRIC ULCER.

IN *Centralblatt f. d. med. Wissenschaften*, No. 10, 1887, a novel explanation of the production of ulcer of the stomach is suggested by RASMUSSEN, who found in a very large number of cases furrows or grooves on the surface of the stomach caused by the pressure of the costal edge. These pressure grooves usually run obliquely from the middle of the lesser curve toward the pylorus. The serosa is often thickened, and he has seen adhesions to the diaphragm. At these points the mucosa sometimes is atrophied. In one of the Copenhagen hospitals scars of gastric ulcer occur in the bodies of 7 per cent. of the men, and from 32 to 36 per cent. of the women, and in the great majority of these cases the cicatrices have been about the middle of the lesser curve, or a little nearer the pylorus; the very situation in which the pressure furrows occur. The author thinks that the theory of a pressure necrosis much more satisfactory than the one usually adopted of thrombosis or embolism of the small arteries. The suggestion is an interesting one, and would account for the much greater frequency of gastric ulcer in women, but, like the older views, it is not free from difficulties.

AT the annual meeting of the Alumni of the Jefferson Medical College held on Monday, Dr. S. W. Gross was elected President, and Dr. Austin Flint, Orator for the ensuing year. In the evening the Alumni gave a reception to Dr. Hunter McGuire, the Orator for 1886, which was largely attended.

THE sixty-second annual commencement of the Jefferson Medical College was held on Tuesday, and the degree of M.D. was conferred on 187 graduates.

THE South Carolina Medical Association meets at Aiken on Tuesday next, the 12th inst., and the Medical Association of Georgia, at Atlanta, on Wednesday, the 20th of April.

THE Southern Medical College, of Atlanta, at its commencement, held March 3d, conferred the degree of M.D. on thirty graduates, and the Atlanta Medical College, on the following day, graduated forty-five of its one hundred and twenty-one students.

REVIEWS.

THE PRINCIPLES AND PRACTICE OF OPERATIVE SURGERY. By STEPHEN SMITH, M.D., Professor of Clinical Surgery in the University of the City of New York, Surgeon to Bellevue and St. Vincent Hospitals, New York, etc. New and thoroughly revised edition. 8vo. pp. 877. Illustrated with one thousand and five woodcuts. Philadelphia: Lea Brothers & Co., 1887.

THIS work of Dr. Stephen Smith's has been a long time before the profession, and its merits have been proven by its exceptionally large sale, eight large editions having been exhausted in less than eight years. The present edition has been thoroughly revised and it will be found to represent fully the views in regard to surgical practice as held at this time.

Time and space do not permit more than a brief notice of this valuable and almost encyclopedic volume, and we shall not attempt an analysis of its contents, but shall briefly note our impressions as derived from a careful examination of its pages. As has been stated, the work is fully abreast of the times, but whilst taking cognizance of the various new procedures which have been advocated with earnestness by different surgeons, there is a tone of judicious conservatism pervading the book which is highly gratifying to those who do not rush to extremes at every new move of doctrine. This is seen especially in regard to operations upon the stomach, intestine, and fractured patella. The author also speaks with no uncertain voice in regard to the use of antiseptics, and we think his earnest but dignified advocacy of the use of these agents will go far toward furthering their general adoption.

The general practitioner will find this work fill a place in his library or upon his desk which but few other works can, for within its covers will be found many subjects discussed which he would look in vain for in most manuals of operative surgery; in fact, this is not a manual but a comprehensive treatise. The first 120 pages are devoted to the principles of operative surgery, preparations for operation, antiseptic directions, treatment of wounds, wound fevers, etc., and the rest of the work is divided into sections corresponding to the various anatomical systems of the body, as the osseous and muscular, with a short section devoted to "Orthopædia." The whole work is up to the times, easy to read, with good type and illustrations, and is a book which will be useful to any one who may be fortunate enough to procure it.

SOCIETY PROCEEDINGS.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, March 2, 1887.

THE VICE-PRESIDENT, JOHN H. PACKARD, M.D., IN THE CHAIR.

DR. N. A. RANDOLPH read the following note on

THE IRRADIATION OF MOTOR IMPULSES.

About two years ago this question arose in my mind, If a man performs work with the muscles of (*e. g.*) his right hand exclusively, and to the point of fatigue, can

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he thereafter perform as much work, of the same nature, with the left hand as he could if the right had not been previously exercised?

It will be seen that this question relates in nowise to a comparison of the work of the two hands, but to an examination of the work which may be accomplished by one hand as conditioned by the previous exercise or non-exercise of its fellow of the opposite side.

It is evident that the answer to this query is dependent on intracranial processes solely, and that such answer would throw some light upon the functional independence or interdependence of the two halves of the brain.

In order to answer the question just stated, certain conditions are prerequisite. The subject of experiment must have no conception of the object of the investigation, or he will unconsciously become a partisan of one or the other hand. He must, also, have a very strong inducement to exercise his volition to the utmost.

These conditions were fulfilled in the persons of some intelligent and vigorous convicts in the Eastern Penitentiary in this city. The stimulus was a money prize to the man who accomplished the most work in a given time. In the prosecution of these experiments I am under obligation to the courtesy and assistance of Dr. W. D. Robinson, physician to the penitentiary.

In the first series of experiments, rubber bulb syringes, identical in all their measurements, were used, and the amount of water which the men could transfer from one vessel to another in a given time was accurately measured and taken as proportionate to the work performed. Some forty observations were made by this method, with the uniform result that either hand could do more work when its exercise preceded than when it succeeded the similar exercise of its fellow of the opposite side. It was found, however, that the muscular effort could not be entirely restricted to one side of the body in this method, as great fatigue was always accompanied by a grimacing and writhing which implicated the muscles of both sides of the face and trunk.

A Morse telegraph was next used, the muscular movements in this case being restricted to an up-and-down motion of one finger of each hand, the number of such movements made in a given time being recorded on the usual long and narrow strip of paper as dots or dashes, in accordance with the celerity of contraction and relaxation of the flexors of the finger. The results of this series of experiments were uniformly confirmatory of those before obtained, but the method had to be abandoned as productive of great eye-strain in counting.

I then had made the instrument which is here shown. It consists simply in the clockwork and dial of an ordinary gas metre, to which a lever is adapted in such wise that each flexion of the finger is recorded by an appropriate motion of the index on the unit dial. The apparatus is fixed in a box, upon which the hand and forearm may conveniently rest. The lever projects through an aperture in the lid, and a glass plate in the side permits the records on the dial to be easily read off and noted. Six healthy prisoners, supplied with the incentives of cash and competition, were repeatedly examined by this means. To each, fifteen minutes was given to make the best record he could with (*e. g.*) the right forefinger, and thereafter the left forefinger was similarly exercised for the same time. On the following day the same process was repeated, always commencing, however, with the finger of the hand which had been used second on the previous occasion. No man was ever thus employed twice on the same day.

The results were practically uniform. The man who for fifteen minutes flexed and relaxed his right forefinger with the greatest speed possible to him would, on the following day, accomplish, on an average, nearly ten per cent. less work with that finger when its exercise was consecutive to a similar exercise of the forefinger of the opposite side, than when its work was initial.

Usually more work could be accomplished by the simultaneous exercise of the two forefingers, than by their exercise one after the other. In such exercise of both hands at once, and apparently from some unconscious effect at rhythm on the part of the subject, it was noted that the movements of the left forefinger were generally more active and rapid than when used alone, although in both instances the greatest effort at speed was evidently made. I am told that some pianists have a similar experience, inasmuch as they find it possible to exercise the fingers of the left hand more rapidly when the right is similarly engaged than when the right is inactive.

The relation of these facts to the observations of Dr. S. Weir Mitchell and Dr. Morris Lewis is supplemental in its nature. These observers, as is well known, showed that the knee-jerk is reinforced by any voluntary movement in any part of the body, and that this reinforcement was apparently due to such an irradiation of motor impulse from the active centres to other similar centres as placed them and their related muscles in a condition of heightened responsiveness to external stimuli. My studies not only tend to confirm these observations, but to show that the fatigue of one centre may induce a sympathetic fatigue in other centres.

These observations are of interest, inasmuch as they suggest—that the centres for volition, attention, and coördination (or one or more of these) are not, in their functional activity, bilaterally symmetrical and independent—that is, that these functions have not attained complete differentiation into right and left will, attention, or coördination; that, probably, the first effect of the voluntary activity of a portion of one cortical motor area is a stimulation of the corresponding portion of the other hemisphere—a stimulation that may result in its slightly premature fatigue; that apparently more work can be effected through the voluntary simultaneous exercise of two such portions of the motor apparatus than by their independent exercise one after the other.

Dr. Weir Mitchell said that the remark that with fatigue comes an increasing tendency to convulsive or useless acts of facial or other muscles, is interesting. It seems to show that with feebleness comes increasing waste by overflow of motor energy on to distant ganglia. Perhaps in all states of weakness there is more or less increase in regard to this tendency. The explanation of Dr. Randolph's facts is difficult. It may be that the overflow of energy on to symmetrically related centres, or on to others, may be competent to weaken them without being strong enough to cause motion; and whether this occurs as regards the opposite hemisphere, or only as regards opposite spinal centres, is hard to say.[1]

[1] As an illustration, we may by a key close the current of two batteries, A and B, each competent to set in motion a mechanism.

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We are also free to speculate as to the relative failure of one hand, the last in use, as due to there being but one centre originative of will signals to the lower ganglia, and itself capable of fatigue. If, however, we entertain any such view, it might be in a measure tested by exacting work from a non-symmetrical pair of limbs, as a foot and hand. He inclined toward the use of the overflow theory to explain the lowered capacity for work by one hand after exhaustion of the other. It would explain why in consentaneous use of two symmetrical parts more work is done than when they follow one the other.

The overflow would be in this case valuable, and not damaging or wasteful. This led him to relate an experiment which Dr. M. Lewis and he left out of their paper on knee-jerk, but of which now he is sure enough to speak. When we use the maximum power of one hand on a dynamometer, the coincident use of the other hand adds nothing to the result; and this form of experiment has been commonly used as a test of the reinforcing capacity of the opposite member. If, however, using two fingers, or the grip of the thigh adductors, on the bulb of a mercurial dynamometer until great exhaustion occurs, and then making a new effort coincidently with violent use of another member, the mercury leaps quite to the level attained during the first effort by unfatigued muscles. It does not seem easy to explain this fact, except by assuming that the overflow of energy usually wasted is in this case made efficient.

The question of muscular, and indeed ganglionic, tone is brought forward in an interesting way by this experiment. When we strike the patellar tendon, a sudden, distant, voluntary act, adds reinforcement. What is it that happens to the muscle or ganglion so influenced? Is it made more sensitive to impressions, or with this is there a slight flow upon it of motor energy? And if so, can we measure the effect, and thus influence what we conceive of as muscular tone?

For some time he has been engaged in discovering if these reinforcements do cause motion—*i. e.*, a slight preparatory muscular contraction making the subsequent volition, or other excitatory activity, more potent in its results.

He has been able, so far, to prove that in spastic cases distant muscular effort, such as a grimace, really causes distinct and measurable movement in the extensors of the thigh and presumably elsewhere. This interesting discovery has been confirmed in New York and at Harvard. Whether in *normal* man remote motion is thus capable of causing slight shortening of all other muscles does not as yet seem clear. In his own experiments he obtained what seemed to be the same but slighter results than such as were seen in spastic paralysis. He hopes very soon to solve his doubts, and to be able to state his conclusions in more decisive shape. Upon what these may be will depend much of our hope as to realizing clearly the true nature of muscular tone.

We often speak of nerve power as if there were a common stock from which are drawn the supplies needed by every active organ, and reason that it is unwise to try to carry on at once two functions which exact large expenditures—as digestion and intense thought, or digestion and exercise. Practically the difficulty may be one chiefly of blood supply. This is illustrated in the not rare fact that some feeble people cannot digest except when at rest. These facts suggest to him the idea that he would like to see if Dr. Randolph's cases would lose ten per cent. of mechanical capacity after a period of exhausting mental labor or during digestion.

Resistances on the one circuit, A, so interfere as to lessen the flow of energy below what will move the mechanism. Meanwhile the other battery, B, runs to exhaustion. At last we call on battery A for a repetition of the full work done by B, and find A unable to effect the same work as that done by B, on account of having been partially disabled by its previous ineffective waste of energy.

DR. H. C. WOOD said that the old theory which was used to explain the principle of counter-irritation, was that there is a certain amount of nerve force in the system, and that when by means of counter-irritation the nerve force is drawn to a distant point, it is removed from the inflamed part. Modern science does not recognize the truth of this theory, but it looks to him as though there is a certain amount of truth in it.

DR. H. R. WHARTON reported a case of

INNOMINATE ANEURISM TREATED BY SIMULTANEOUS DISTAL LIGATION OF THE RIGHT COMMON CAROTID AND SUBCLAVIAN ARTERIES; RECOVERY.

Andrew C., aged forty-two years, was admitted to the University Hospital, suffering from an aneurism of the innominate artery.

On Nov. 13th he was etherized, and Dr. Ashhurst cut down upon and ligated the right common carotid artery just above the omohyoid muscle with a catgut ligature; the right subclavian artery was next exposed and ligated in its third part just outside the anterior scalene muscle with a ligature of the same material. The wounds were closed with silver sutures, drainage tubes being introduced, and were dressed with oiled lint, the whole right arm being wrapped in cotton. No immediate effect was noticed in the aneurism from the application of the ligature, nor were there any cerebral symptoms. The patient did well after the operation, and upon the succeeding day the temperature and color of the right arm were good. The wounds did well, and in the course of a few days it was noticed that the tumor at the root of the neck had become smaller and firmer, and that its pulsations had diminished in force; the dyspnœa and dysphagia had also diminished very markedly, and the patient was able to sleep comfortably in the recumbent posture. Up to the time of his discharge from the hospital repeated examination failed to discover any pulsation in the radial artery. After this time the patient's improvement was continuous, and he was discharged from the hospital on January 13th, just two months after the operation.

Consecutive double distal ligation of the right carotid and subclavian arteries has been practised for innominate aneurism (as diagnosticated) in eight cases, with three recoveries and five deaths, although there was temporary relief in one of the fatal cases.

Dr. Wharton has found the records of thirty-two cases of simultaneous double distal ligation of the right carotid and subclavian arteries for innominate aneurism (as diagnosticated), in which the operation was followed by recovery in twelve cases, death in sixteen cases, and by temporary improvement in four cases. The results of both methods of treatment as regards the number of recoveries is nearly equal, but it must be remembered

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that the number of cases in which consecutive ligation was resorted to is very small in comparison with that in which simultaneous ligation was employed. He thinks, therefore, that at the present time the weight of surgical opinion is in favor of the views of Mr. Barwell, that, in innominate aneurism, the simultaneous double distal ligation of the right carotid and subclavian arteries is both a more efficient and safer procedure than the consecutive ligation of the vessels.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, March 23, 1887.

THE PRESIDENT, CHARLES McBURNEY, M.D., IN THE CHAIR.

CASE OF EXCISION OF THE ELBOW.

DR. WYETH presented a boy, fourteen years old, whose elbow he had excised a few weeks before. He entered Mt. Sinai Hospital in January, having but slight power of motion in the left elbow. Exsection was performed, one inch of the humerus being removed, together with the articular surface of the radius and ulna. The olecranon was partially preserved, in order to maintain the attachment of the triceps. A movable splint was applied, and at the expiration of ten days passive motion was practised daily. A rapid recovery followed. The patient was presented in order to show the fair degree of mobility obtained at this early stage of the after-treatment.

DR. GERSTER said that he had repeatedly used the apparatus in a case of excision, but had not been entirely satisfied with the result, since flexion could be carried only to 90 degrees, because the posterior part of the capsule was too short. In reply to a question from Dr. Wyeth, as to whether the new capsule was not rendered more lax, he said that, on the contrary, he employed this method of treatment in order to correct too great laxity. By reason of the movable hinge, the bones were compelled to move backward upon the sawn surface of the humerus; otherwise they would tend to be attached near to its anterior edge.

DR. BRIDDON asked if the object aimed at was not to restore the fulcrum as it originally existed.

DR. GERSTER said that it was. The apparatus, he explained, was not originally devised by Dr. Lange, but by Madelung some time before; Dr. Lange had only added the sliding fulcrum.

DR. SANDS remarked that, theoretically, all excised joints should heal without suppuration, but that such results were certainly exceptional. The result in the present instance seemed to be fairly good. Where there was no suppuration healing occurred promptly, as in a case which he had exhibited before the Society, and in which he had performed excision for the relief of ankylosis; healing was complete at the end of two weeks. It would be useful, the speaker thought, to note in the case presented just how much had been gained by the treatment. While rotation appeared to be good, flexion and extension were both limited, the angle between the arm and the forearm being 90 degrees in the position of extreme flexion, and about 130 degrees in that of extreme extension. It seemed also to him that the impediments to free motion were of a bony character, which would not be removed by passive motion.

DR. WYETH admitted that Dr. Sands's observation with regard to the limitation of motion was just as it applied to extension of the forearm. He had purposely left a little of the sigmoid surface in this case, in order to preserve the insertion of the triceps muscle; the arrest of extension was undoubtedly due to this bony projection. He added that the boy had passed from under his observation three weeks after the operation, although he did not leave the hospital until three weeks later), so that he (Dr. Wyeth) did not have an opportunity to practise passive motion of the joint; he intended to see the patient at frequent intervals, in order to manipulate it. If he could gain no more of extension than that at present enjoyed he would be satisfied. The object of further treatment would be to improve flexion.

DR. POORE said that he had excised an elbow more than a year before, and the patient returned with complete ankylosis. He repeated the operation, and healing occurred without suppuration, although pus had been present on the first occasion. He thought that there was always more or less suppuration after the first operation.

DR. WYETH remarked that there was very little suppuration in the case under consideration. Strips of tin were applied at first, but these were removed, and the movable splint worn after ten days.

DR. BRIDDON thought that the restricted motion observed in these cases was often due to the surgeon's anxiety to save as much of the bone as he could. He cited in illustration a case in which he had freely excised an elbow-joint in a woman, and, as a result, the arm appeared to be little better than a flail. After an angular splint had been applied the patient could use the limb quite well. He thought that she could not do without the splint, until it was removed for a time in order that it might be repaired, when she found that she could dispense with it. She was now able to perform her household work without any trouble. He has within a year excised the elbows of two children at the Presbyterian Hospital, whose ages were about the same as that of Dr. Wyeth's patient. In one case tuberculous arthritis was present, and there was a long sinus leading into the joint. A bone drain was introduced, and this was filled with iodoform. There was no suppuration whatever, and the patient was well in seven weeks. The second case was one of badly united fracture, and healing was perfect at the end of four weeks. The patient had been repeatedly examined since the operation, and the motions of the joint were entirely satisfactory.

In answer to a question from the President DR. WYETH said that by employing passive motion he expected to produce gradual stretching of the contracted ligaments. Limitation of flexion in the case presented was probably due to this condition, but extension was prevented by the contact of bony surfaces.

DR. GERSTER'S experience in the fifteen or sixteen excisions which he had performed had been this, that more *personal* attention was needed on the part of the surgeon in cases where only small portions of bone were removed, especially in children. It was necessary to employ passive motion very carefully, or serious harm might be done. Active motion intelligently directed, and massage were the agents to be used, the latter being especially valuable when a small amount of bone had been removed. The obstacles to motion

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were, in the first place, the swelling of the parts, and in the second, the pain and resistance on the part of the patient. Whenever, the speaker added, he did not attend personally to the details of after-treatment, the result had been unsatisfactory. Suppuration was not such an important element as regarded the final result; better results sometimes followed in cases that did not heal by first intention, because the surgeon gave more attention to the case than when healing was uninterrupted. Dr. Gerster had never had a case of ankylosis after excision, and in several instances there had not been a drop of pus.

DR. SANDS contended that it was important to avoid suppuration in cases of partial excision. He cited the case of a patient, presented to the Society by Dr. Hall, in whom he (Dr. Sands) had excised only a portion of the olecranon, for limited tuberculous disease, the whole hinge-joint being preserved. There was an entire absence of suppuration and motion was almost perfect. The speaker could hardly imagine how suppuration could occur in a joint thus excised, in which the opposed surfaces were so intimately related, without resulting ankylosis, or, at least, some limitation of motion. When a large amount of bone was removed, it did not make so much difference.

DR. GERSTER accepted Dr. Sands's amendment with regard to the class of cases in which it was important to avoid suppuration entirely. The more nearly an excision approached an arthrotomy, the more necessary was it to secure an absence of suppuration. The speaker acknowledged that he should have expressed himself more exactly by using the terms *septic* suppuration, meaning a suppurative process that resulted in the extensive destruction of the tissues belonging to a joint.

DR. ROBERT ABBE read a paper entitled

ANEURISMS TREATED BY THE INTRODUCTION OF CATGUT, OR OF WIRE, WITH ELECTRICITY.

(See page 397.)

DR. PETERS asked Dr. Abbe if he had met with a record of Dr. Buck's case, in which wire or horsehair was introduced into the sac.

DR. ABBE replied that there were several recorded cases in which horsehair and other foreign bodies had been employed, but that his paper dealt exclusively with the use of wire and catgut.

DR. WEIR asked whether it was desirable to use electricity so long if the wire was really disintegrated.

DR. ABBE did not think that harm could result.

DR. WYETH did not see what additional advantage was obtained by passing a galvanic current through the wire after it had been introduced, since experiments on animals had shown that the mere presence of a foreign body in a bloodvessel was sufficient to produce this result. As he understood the purpose of the operation, it should be to favor *slow* not *rapid* coagulation, since the latter process is fraught with more danger than is gradual solidification of the tumor.

DR. SAND called attention to the fact that the idea that rapid coagulation of the blood in an aneurism is injurious, had been abandoned. There are many cases on record in which large aneurisms had been cured by total compression continued for not more than an hour, or an hour and a half, the coagulation being perfect and the cure permanent.

DR. WYETH replied that about nine years before he had made a special study of large aneurisms at the root of the neck and at the arch of the aorta, and had published a paper on the subject. At that time after a careful review of the evidence on the subject, he had reached the conclusion that rapid coagulation of the blood within the sac was more apt to be followed by disastrous consequences.

DR. WEIR thought that the brilliant results obtained by Esmarch's method of treatment showed that rapid coagulation was not dangerous. The best results had been obtained in cases of sacculated aneurism. He was struck while examining Dr. Lange's specimen with the fact that many of the loops of wire remained free within the cavity of the sac, were quite bright, and had no clot adherent to them. Dr. Weir thought that there was something in the idea advanced by the reader, that the galvanic current served to roughen the surface of the wire, and thus favored the deposition of clot.

DR. GERSTER said that he had practised the method described by the reader in one instance. The patient was an undertaker, forty-five years of age, who entered the German Hospital, early in January, with a large dissecting aneurism that involved the arch of the aorta and protruded behind the sternum and clavicle, interfering with respiration. Shooting pains in the occipital region formed a prominent symptom in the case, while hoarseness was also marked. Although the patient's physician affirmed that the tumor had first appeared only three weeks before, the pains in the head and in the nape of the neck, supposed to be of a rheumatic character, had been present for a year. Dr. Gerster inserted a canula into the sac, and introduced through it thirty-six feet of thoroughly disinfected steel wire similar to that used by Dr. Abbe, care being taken not to push in the canula beyond the middle of the sac. It was noticed that as a fresh portion of wire was thrust in, there was a rhythmical protrusion of the opposite wall of the sac. The operation was easy, lasting only thirty minutes, and caused no discomfort to the patient. The spot where the puncture was made was carefully covered with iodoform gauze. There were no bad symptoms until the end of the third day, when the temperature began to rise. It eventually reached 102° F. The size and state of the tumor were certainly not favorably affected by the operation, while the patient's general condition became worse. The tumor grew softer, and on the seventeenth day after the operation a sudden and fatal hemorrhage into the pleural cavity occurred. An autopsy was not permitted. In this case there was not even an apparent improvement after the introduction of the wire. The speaker added that, if he had occasion to repeat the operation, he would use ordinary unpolished iron wire, because he believed that its roughness would be more likely to favor coagulation.

DR. BRIDDON asked if catgut introduced into an aneurism did not soon become softened, and float in the blood-current, so that there was danger of its being carried into the distal vessels.

DR. ABBE thought that it was desirable the artery leading from the sac should be plugged; doubtless this sometimes occurred.

DR. BRIDDON explained that he referred, not to the distal portion of the artery at its exit from the sac, but to the distal vessels. If only one vessel was occluded,

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no harm would result, but all the efferent vessels might be plugged. The reader did not see how this accident could occur, as the catgut became so matted together that a portion of it could not escape from the sac unless the entire mass was dislodged.

Dr. Gerster referred to a case in which during the introduction of wire into an aneurism of the aortic arch, alarming symptoms occurred. It was found that a portion of the wire had become separated and was pushed downward through the lower opening of the sac until it rested upon the aortic valves.

Dr. Abbe said that a similar accident had occurred in Dr. Ransohoff's case. A piece of wire was pushed through the sac and came in contact with one of the valves, in consequence of which the patient had a severe attack of syncope during the operation. In reply to a question by the President, the reader admitted that the operation was not entirely devoid of risk, but then, he added, it must be remembered that the cases were all desperate ones.

Dr. Wyeth said that he had been disappointed to see that none of the speakers had drawn a comparison between the results of the method described by Dr. Abbe and distal ligation. All the cases mentioned by the reader had terminated fatally within three months at the longest, the average duration of life after the operation being about twenty-five days. The results of distal ligature had certainly been much better as regarded both the prolongation of life, and the cure of the aneurism. He cited in this connection the case of a patient in whom he had tied the right subclavian and carotid for an aneurism involving the sinus magnus of the aorta, which had advanced so far as to cause erosion of one rib. The patient was clearly in a hopeless condition and death was imminent. After the operation she was greatly improved, the tumor decreasing visibly, and lived for a year, dying eventually of acute diarrhœa. At the autopsy it was found that the sac was almost entirely filled with coagulated blood, the space that remained being no larger than an almond. He still had the specimen in his possession. The benefit to this patient was undoubted, and there was no reason to believe that the patient would ever have died in consequence of the aneurism.

CORRESPONDENCE.

A CASE OF SKIN-COLORING FROM THE CONTINUED USE OF NITRATE OF SILVER.

To the Editor of The Medical News,

Sir: Well-authenticated cases of skin-coloring by nitrate of silver are sufficiently rare to warrant a report of the following case:

Mrs. I., æt. forty, who lives in a neighboring town, came to me a few weeks since and said: "Doctor, I wish you would look at my face, and tell me whether you think that there is any probability that this discoloration could be removed by medicine. About two years ago I went to a doctor for treatment to correct a chronic diarrhœa, and he gave me a pill, directing me to take one three times daily, and to continue the medicine for some weeks. I have taken those pills almost every day since that time, never suspecting that this peculiar color of my face and hands was due to the continued use of the medicine. I know the medicine has produced this result, because I called on the doctor the other day, and he told me that I had colored my skin with those pills, and that he did not mean that I should use them for so long a time."

To ascertain the amount of silver she had taken in each pill, I asked for a copy of the prescription, and found the dose had been one-third of a grain. This amount, according to her own statement, she had taken almost continuously for about two years. The coloring of the skin is very marked, a dull, dark, metallic appearance in certain lights, and a bright lustre like burnished silver in others. No other case that I have ever seen would, without hearing the history, suggest at once the deposit of silver in the skin as this case does. Then, too, I had seen the lady on several occasions previous to the use of the medicine, and remember her as having had a singularly fair and transparent complexion. There are certainly few cases on record of this peculiar color of the skin, in which the cause can be so clearly traced to the long-continued use of nitrate of silver.

H. M. Shallenberger.

Rochester, Pa.

NEWS ITEMS.

MONTREAL.

(From our Special Correspondent.)

McGill University, Medical Faculty, New Graduates.—45 men received the M.D. C.M. degree at the last convention of McGill University, held March 29. There were also 45 men who passed the primary or second year examination in anatomy, physiology, histology, and chemistry. The total number of students in the medical faculty (exclusive of 30 veterinary) was 231. Of these 112 came from the Province of Ontario. Prof. Buller read the valedictory on behalf of the Faculty, and Dr. A. D. McDonald, of New Brunswick, on behalf of the graduating class.

Summer Session.—The summer session of the medical faculty of McGill University commences April 12, and continues three months. The courses are chiefly practical and clinical.

Toronto Medical Schools.—The medical schools of Toronto at present have no power to confer degrees. They merely prepare their men for the provincial examining board and the examinations of the Toronto and Victoria Universities. One of these schools is at present applying to the Legislature for power to grant the M.D. degree; it is opposed by the other. A suggestion is made that the two schools unite and one good school be formed. If this is done, another teaching body is sure to be formed to fill the void and give places to men who desire the prestige and glory (if such there be) of being connected with a medical school.

The Ontario Medical Council are endeavoring to get a bill through the Legislature giving them power to strike off from the register the name of any one guilty of unprofessional conduct.

Medical Legislation in Quebec.—The present session of the Legislature in Quebec promises to be a

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short one and there is not much doubt that the consideration of the new medical act will be postponed. The change of government has altered the state of affairs considerably.

INVESTIGATION OF THE INSANE ASYLUMS.—A Royal Commission has been appointed to investigate the various lunatic asylums in the Province of Quebec. If the commission be properly composed of independent and unprejudiced men, the results may be of great value, and the iniquity of the "farming system" will be thoroughly exposed; but a very thorough investigation in the present state of political parties cannot be looked for.

THE NEW YORK BOARD OF HEALTH.—The Board of Health has amended the section of the Sanitary Code governing the removal of stable-manure, so that, in future, such material on any city premises must be baled or removed as soon as a cartload has accumulated, it being also provided that the baled manure shall not be allowed to become a nuisance. This change has been made at the request of the Medical Society of the County of New York, on the recommendation of its Committee on Hygiene.

RESIGNATION OF DR. FRANCIS MINOT.—Dr. Francis Minot has resigned his position as Visiting Physician at the Massachusetts General Hospital.

PRIZE OF $1000.—The Concentrated Produce Company, of London, offer the above prize for the best work upon the "Physiological Action of the Narcotic Principle of Hops." Competition is open until February, 1888.

DEFECTIVE SANITATION AS A CAUSE OF PUERPERAL DISEASE.—Under the above title Dr. W. S. Playfair, one of the leading physicians of London, has recently given an address in which he describes several cases of puerperal fever occurring in houses of the best class, and in which investigation showed that the patients had been exposed to the influences of sewer-air during and immediately after labor. This exposure was caused by leaky and defective fittings in the house plumbing, and in the address, as published in the *Lancet* of February 5, 1887, several diagrams are given, showing the relations of the bedrooms of the sick women to leaky soil-pipes, trapless bath wastes, etc.

Undoubtedly, a woman, immediately after the birth of a child, is specially susceptible to the action of the specific germs which tend to produce inflammation and abscesses, and either soil-pipe or sewer-air is specially liable to contain these germs.

We have had occasion before to comment on the special danger incurred by a woman who is confined in the autumn in a city house of the better class which has been unoccupied during the summer. All such houses are connected with either sewers or cesspools, and unless the traps be kept sealed with fluid, the germs above referred to are liable to enter the bath-rooms, and bedrooms connected with them, and to be found in the dust which settles in various parts of the room. If the house is unoccupied for any length of time the traps will become unsealed by evaporation. This danger can be avoided by filling the traps with glycerine, or by making arrangements to have water run in all the fixtures for a moment or two once every day.

If through ignorance or forgetfulness these precautions have been omitted, a thorough removal of all dust by cloths or sponges moistened with a solution of bichloride of mercury of the strength of 1 to 1000, with aëration of all rooms, is the best way to obtain security. Special care should be taken not to do any dry sweeping or dusting in the rooms until all surfaces have been rubbed with the solution above referred to, for unless this be done the dangerous dust will be merely whisked about and displaced, but not destroyed. — *Sanitary Engineer*, March 26, 1887.

THE HOSPITALS OF GERMANY.—In the Report of the German Exhibition in Hygiene, as noticed in the *British Medical Journal*, of March 5, 1887, DR. BOERNER describes hospitals in Germany as follows: Like the slaughter-houses and market at Berlin, the Friedrichshain Hospital, near that city, bears the palm. It consists of four pavilions for surgical, six for medical, and two for infectious cases, with administrative department offices, etc., all forming detached blocks. Each pavilion has its own operating room, bath room, apartments for attendants, kitchen for minor cookery, heating apparatus, etc., forming a complete and almost independent establishment. The blocks are of one story only, consisting of a general ward with twenty-eight beds, with offices at one end and the apartments at the other; over the latter is a small ward, entirely shut off from the larger one, containing a couple of beds for suspected cases, pending removal to the infectious blocks. The building is warmed by hot water pipes, and the ventilation, when the weather does not admit of perflation by the windows, is effected by warmed air. The system adopted is too complex for description in this place, but is highly ingenious and scientific, and is said to be most satisfactory in every way. Like most of the newer hospitals in Germany, it is outside of the city, and surrounded by park-like grounds. Next, perhaps, to that of Friedrichshain stands the Moabite, also at Berlin, which consists of thirty detached pavilions, each containing thirty beds. It is heated by steam, but natural ventilation only is employed; the ridge of the roof of each ward being formed of two valves, surmounted by a riding roof, also with a valve arrangement. Such a construction would, it seems to us, be admirably adapted to churches. More than thirty other hospitals are described and figured, and the report concludes with a summary or survey of the whole subject by Dr. Boerner. One-storied buildings, he says, are everywhere preferred for surgical, obstetric, and infectious cases, though two stories may be permitted in the treatment of ordinary medical cases. In some hospitals, separate blocks are appropriated to skin diseases, cancer, and ophthalmic cases. At Halle, the several infectious diseases are treated in distinct wards, ingeniously isolated one from the other, and separately ventilated; while, at Magdeburg, convalescents are removed to special blocks. Heating is almost everywhere effected by hot water or steam pipes, and ventilation generally by warmed air, at least in cold weather, but the systems adopted are very diverse. At Dresden, the flues can be laid open for cleaning throughout their entire length; and at Berlin University Hospital, at Halle, and elsewhere, they

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are very accessible. At Hamburg alone, the floors are of stone, warmed by flues—a plan which has received but little favor in medical circles. In several hospitals the elaborate systems of combined heating and ventilation leave little to be desired, especially in winter, but in others they are far from successful. None, however, approaches that of the Moabite Hospital at Berlin, where flues and exhaust-shafts are dispensed with, and the warm air, abundantly supplied from below, finds free exit in the valvular arrangements of the ridge and riding roof. Nothing could be simpler; but the working is costly from the large amount of heat wasted, if that can be called waste which secures an unlimited renewal of the air.

Who Should Visit Carlsbad.—Dr. Taylor, writing in answer to this question in the *New York Medical Journal* of April 2, 1887, describes suitable patients for Carlsbad "cure" as follows:

The typical patients for Carlsbad are, according to my experience and conviction, those with certain affections of the glandular system, especially of the liver and kidneys, and of the mucous membranes. Perhaps I might better say, all those affections depending on, or accompanied by, general capillary stases, terminable in some form of direct disintegration, but excluding cases, like tuberculosis, in which there are formative processes of a low order preceding disintegration.

At any rate, one important effect of the Carlsbad waters seems to be the thorough washing out of the capillaries. Hence the important service it renders the mucous membranes and glands when the nutritive fluids find difficulty in circulating through them.

Proving the Soundness of an Eye.—In a large factory in which were employed several hundred persons, one of the workmen, in wielding his hammer, carelessly allowed it to slip from his hand. It flew half way across the room, and struck a fellow-workman in the left eye. The man averred that his eye was blinded by the blow, although a careful examination failed to reveal an injury, there being not a scratch visible. He brought a suit in the courts for compensation for the loss of half of his eyesight, and refused all offers of compromise. Under the law, the owner of the factory was responsible for an injury resulting from an accident of this kind; and although he believed the man was shamming, and that the whole case was an attempt at swindling, he had about made up his mind that he would be compelled to pay the claim. The day of the trial arrived, and in open court an eminent oculist retained by the defence examined the alleged injured member, and gave his opinion that it was as good as the right eye. Upon the plaintiff's loud protest of his inability to see with his left eye, the oculist proved him a perjurer, and satisfied the court and jury of the falsity of his claim. And how do you suppose he did it? Why, simply by knowing that the colors green and red combined make black. He prepared a black card on which a few words were written with green ink. Then the plaintiff was ordered to put on a pair of spectacles with two different glasses, the one for the right eye being red and the one for the left eye consisting of ordinary glass. Then the card was handed him, and he was ordered to read the writing on it. This he did without hesitation, and the cheat was at once exposed. The sound right eye, fitted with the red glass, was unable to distinguish the green writing on the black surface of the card, while the left eye, which he pretended was sightless, was the one with which the reading had to be done.—*Pottery Gazette.*

How to Scald Milk.—Take a thick glass bottle provided with a rubber cork, fill it with milk nearly up to the neck, and place it uncorked in a kettle of water, which should then be gradually brought to the boil. When steam has commenced to escape from the bottle, cork it tightly, and continue the boiling for thirty-five or forty minutes, and the process will be complete. A bottle of milk thus prepared, it is said, will remain sweet a month if in a cool place.

The above method is suggested by that of Prof. Soxhlet (*Münch. med. Wochenschr.*) in which ten bottles like soda-water bottles, capable of being exposed to heat without cracking, are fitted into an open stand like a cruet stand, or an egg frame. The milk is first prepared by dilution and otherwise for administration, and the bottles are filled to within a short distance of the top. They are then closed with a rubber cork containing an aperture for the feeding tubes. This hole is to be left open. The frame containing the bottles is then placed in a metal pot of water for heating, immersed so as to be covered up to the neck. Heat is applied until the water boils when, after the milk and air in the bottles have expanded sufficiently, the holes are to be closed, glass rods being used for this purpose. The water is afterward kept boiling rapidly for thirty-five or forty minutes, when the stand with the bottles in it is to be lifted out to cool. Milk that has been treated in this way will keep, at the ordinary temperature of the room, for from three to four weeks without curdling. At the same time it is free from the inconvenient formation of skin on the surface, by which the feeding tubes become stopped up and made dirty. When once open, all of the bottle should be quickly used. Any portion not consumed at once should be thrown away.

The process of boiling articles to be preserved in an open vessel and sealing this vessel while steam is escaping, subsequently keeping up the heat for a time, will be familiar to every one who has canned fruit. The reason this method has not been more commonly applied to milk, is perhaps explained by the fact that curdling has been considered an inevitable property of milk. With the progress of the germ theories, however, it has been decided that even this every-day phenomenon depends upon contamination by these pests.

All have realized that stale milk will spoil that which is fresh, if mixed with it in ever so small a proportion. A tainted can or bottle has to be avoided for this reason. If the action of microörganisms produces the coagulation, the tainting of fresh by stale milk is easily understood.

What is effected by Prof. Soxhlet's process? In the first place, by boiling in an open vessel all air is expelled from the surface of the fluid, and thus, by depriving them of oxygen, the further growth of any germs already in the milk is prevented. The subsequent boiling of the sealed vessel is intended to destroy such retained germs.

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The reason that milk thus preserved will not keep indefinitely, is entirely due to the imperfect execution of the process with the conditions at our command. It is improbable that thrusting a glass rod into the aperture of the cork will make the bottle completely airtight; and, further, it is doubtful whether by simply placing the bottle in boiling water we can destroy all germs. Dr. Knapp considers repeated and prolonged exposure to moving steam necessary for perfect sterilization. Prepared in this way, he has in his laboratory flasks of milk which, after many months, are yet perfectly sweet.

But we cannot control the conveniences of a laboratory, and Prof. Soxhlet's method will be found a great improvement upon our usual procedures. It is hoped, that in view of the immense importance of the subject, and the very general acceptance which bacteriology has gained, the nurse will not be difficult to convince in this matter. It is an affair quite within our own province. Instead of "scalding milk" upon the back of the stove, in a tin vessel, one can adopt the bottle with a rubber cork. An ordinary soda-water bottle, if thoroughly cleansed, will answer the purpose. The perforated cork and glass rod are only necessary when the cork is intended to fit the feeding-bottle tube. The milk as it arrives may be immediately subjected to treatment, and afterward prepared as required. The previous dilution and the feeding out of the sterilized bottle, is a further refinement of the process, and a complicated arrangement, which the nurse could not introduce without the physician's order.—*The Nightingale*, March 15, 1887.

FEMALE MEDICAL STUDENTS ABROAD.—*Nature* gives in a recent issue some interesting details respecting the number of women engaged in the study of medicine at certain European centres of professional education. At the University of Paris there are at present *in statu pupillari* in this faculty, no fewer than one hundred and eight women, thus distributed as to nationality: Russian, 83; English, 11; French, 7; American 3; Austrian, 2; Roumanian, 1; Turkish, 1. The greater proportion of Russian students is due to the closing of the Female Medical School, founded a short time ago in St. Petersburg, and it is assumed by M. Beclard, in his report to the Academical Council of Paris, that, owing to the fact that the preliminary studies of the Medical Faculty of the University having now been made the same for men and women alike, the number of the latter entering the school will undergo gradual but certain diminution. It is also noted that one lady, Miss Klumpe, has been elected this year to the post of interne in the Paris hospitals, she having secured the second place on the list of successful candidates. At the University of Upsila there are at present three ladies engaged in the study of medicine.—*Obstetric Gazette*, March, 1887.

PASTEURISM AND ITS RESULTS.—M. Bergé, an inhabitant of Bordeaux, who was treated for rabies by M. Pasteur six months ago, developed symptoms of the disease a few days ago. He was taken to the Saint André Hospital, where he died, after a terrible attack of rabies. Dr. Pitres refused to give his opinion upon this case until he had inoculated rabbits with a portion of the patient's spinal marrow.—*British Medical Journal*, March 12, 1887.

LITTLE PILLOWS.—Miss Brennan suggests in *The Nightingale* of March 15, 1887, that chaff, where it can be obtained, makes a good cushion for preventing pressure, and relieving weariness in the sick. These cushions or pillows are most convenient when about twelve inches long and eight inches broad. They must be both firm and soft. Cotton can be used in the absence of better material. In using cotton, pack it evenly, so as to avoid lumps. Cases or covers of old linen make these pillows particularly grateful where used next to the fevered skin.

Six such cushions are not too many for use about the subject of a tedious illness. Two, one upon each side under the hip-bones, take the place of a ring in averting bedsores, and contributing to the patient's comfort. They can be tucked under the back for a support when the patient is upon the side, answering better than the larger pillows for this purpose. One can be put under the head to save pressure upon the ear, which often becomes tender after being a long time in bed. If the head is to be a little lifted, it is easier for the patient to have one of these cushions slipped under, on top of the pillow, or tucked in so as to prop up the pillow, than to have the whole rearranged. One can be placed between the knees when the patient is upon the side; under the ankle when the heel has become sensitive to pressure. One can be tucked under the shoulder so as to lift the sharp angles of the emaciated body from the bed. In fine, the uses of these little pillows are numberless, and it would be a most acceptable charity if sewing circles and others interested, prepared them in quantities for hospital use. The emaciated patient, dying of consumption or cancer, would employ them with gratitude; also surgical cases, such as cases of fracture of the thigh and leg, which must maintain one position. The relief afforded in these cases by a little pillow, now here and now there, must be seen to be appreciated.

NOTES AND QUERIES.

A PORRO-MÜLLER OPERATION.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue of March 26th is published an abstract of a report of a Porro-Müller operation, submitted by myself before the Philadelphia Obstetrical Society. The abstract was prepared by the Secretary, who omitted to state that the patient was under the care of Dr. F. J. Groome and others, of Bristol, Pa. It was at the request of Dr. Groome that Dr. Allis and myself proceeded to Bristol, on the seventh day of labor, and performed the operation. We did not attempt version as stated.

WILLIAM H. PARISH.

PHILADELPHIA, March 27, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 26, 1887.

WAGGENER, J. R., *Passed Assistant Surgeon.*—Commissioned a Surgeon on the 18th of March.

FITTS, H. B., *Passed Assistant Surgeon.*—Ordered to the Receiving Ship Vermont.

TRACY, E. C., *Assistant Surgeon.*—Detached from the Vermont and ordered to the Atlanta.

HEFFINGER, A. C., *Passed Assistant Surgeon.*—Detached from the Atlanta and ordered on special duty in connection with construction of hospital at Widow's Island, Me.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING APRIL 2, 1887.

URQUHART, F. M., *Passed Assistant Surgeon.*—To assume charge of Cape Charles Quarantine, March 29, 1887.

NORMAN, SEATON, *Assistant Surgeon.*—To report for duty at Cape Charles Quarantine, April 2, 1887.

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THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

BRAIN SURGERY.
REMOVAL OF A LARGE SARCOMA, CAUSING HEMIANOPSIA, FROM THE OCCIPITAL LOBE.[1]

REPORTED BY W. R. BIRDSALL, M.D.,
PHYSICIAN TO THE DEPARTMENT OF NERVOUS DISEASES, MANHATTAN EYE AND EAR HOSPITAL;
AND
BY ROBERT F. WEIR, M.D.,
SURGEON TO THE NEW YORK HOSPITAL, ETC.

THE following history herewith reported conjointly by Dr. Robert F. Weir and myself, is that of a patient who during life presented left hemianopsia, optic neuritis, and certain disturbances in locomotion, from which the diagnosis of tumor of the right occipital lobe was made by several physicians, who also concurred in advising an operation attempting its removal, a fatal result appearing otherwise inevitable. As predicted, the tumor was found in the region described. It was removed in the manner to be stated by Dr. Weir, death resulting subsequently.

Male, æt. forty-two, a Hebrew, native of Poland, came under my observation, October 16, 1886. Until the summer of 1885 he had always been healthy, and denied ever having had any form of venereal disease, or injury to the head. In August, 1885, after a sea-bath, he observed, for the first time, unsteadiness of gait, and had a severe attack of vomiting. Soon after, diplopia for distance and increased awkwardness in walking were observed, and about the same time a disagreeable sensation, akin to numbness, in the right leg, hand, and shoulder, but not in the face. This, and the diplopia were transitory. Headache, usually frontal, was present occasionally, but was never severe. Vertigo, or tendency in a definite direction, was not noticed at this time. No other sensory, motor, or visceral symptoms appeared. He was observed to miss objects when told to pick them up. This was probably due to the diplopia.

He was seen by several physicians at this time, whose opinions are only known to me through "hearsay evidence." Suffice it to state that the diagnoses of locomotor ataxia, chronic spinal meningitis, multiple sclerosis, and dementia, were made by different ones, if they were correctly reported.

Oct. 7, 1885. The patient consulted Dr. E. C. Seguin, and was under his observation for two or three months. Dr. Seguin has kindly given me a summary of the notes of his examination and opinion at the time, which are of interest and importance, as he was the first to recognize in the patient the important localizing symptom—hemianopsia, and to make the correct diagnosis, and also to have seen him before and during the development of the optic neuritis, and at a recurrence of the diplopia.

"Examination: Eye muscles normal (no diplopia with red glass). Left pupil a trifle wider than right; both active; fundus normal. Has left lateral hemianopsia, vertical line passing a little to left of fixation point. No paresis of face, tongue, or limbs; no anæsthesia; patellar reflexes normal; walk is somewhat staggering, with decided tendency to right.

"*29th.* Diplopia has recurred; left externus weak; hemianopsia the same. No hemiopic pupillary reaction. Grasp: R., 42°; L., 30°.

"*Nov. 7.* Beginning neuro-retinitis discovered. This was verified ten days later by Dr. Gruening, who had already seen the patient for hemianopsia, and determined the extent of his visual field, as shown by the accompanying chart (Fig. 1). Both externi paretic (this passed away later). His wife states that drowsiness in the daytime has been a marked symptom from the first; also difficulty in rising from the chair."

Diagnosis made November, 1885: Tumor of mesial aspect of right occipital lobe, involving primarily the cuneus, extending downward toward the tentorium cerebelli, and perhaps also upward toward the paracentral lobule (leg centre). During this period the patient was treated with large and increasing doses of potassium iodide.

From January to July, 1886, he was under the care of the late Dr. McBride. During the early months of this period his diplopia disappeared and never returned. His gait improved somewhat, though he had two attacks in which he suddenly, while walking on the street, felt that he could proceed no further, and at the same time had a strong tendency toward the left, and actually staggered to the left so that his wife was obliged to support him. After resting a few minutes he was able to walk again. No other symptom of importance could be elicited from the patient or his wife covering this period, and Dr. McBride's notes have not been accessible to me. I understand that potassium iodide was his chief reliance for treatment. In July, patient took a trip to California, and returned in September, in about the same condition, from which time on his difficulty in rising, standing, and walking, together with drowsiness, rapidly increased.

At the time of my examination in October, 1886, left lateral hemianopsia was present. The ophthalmoscope revealed double optic neuritis, most marked in the left eye. Iris active to light and accommodation, the left pupil somewhat larger than the right; no diplopia; no ocular paresis evident. Smell, taste, hearing, and speech normal; no word deaf-

[1] Read before the New York Neurological Society, April 5, 1887.

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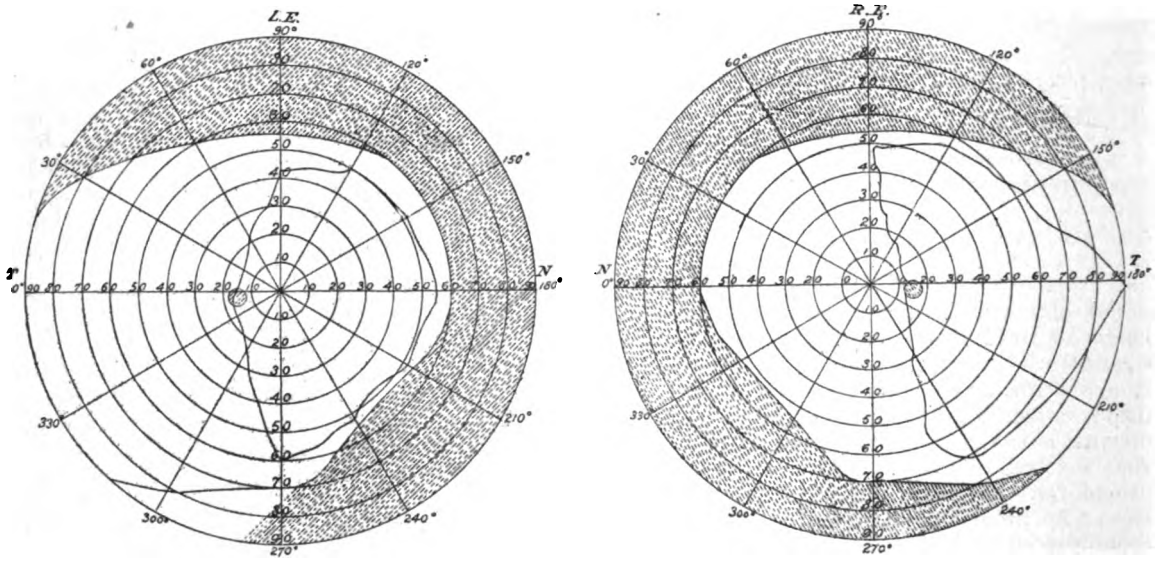
ness or word blindness; no anæsthesia, analgesia, or disturbance of temperature sense in any part of body. No paresis in muscles of face, trunk, or extremities. No tremor of tongue, face, or extremities. In testing the patient for ataxia by touching finger to the nose with eyes closed, his movements were

No new symptoms developed, except that the right patellar tendon reflex became somewhat greater than the left. His disturbance of equilibrium continued to increase in a very irregular manner. On some days he would stand and walk quite well, on others he would suddenly stagger in walking, or fall over

FIG. 1.



Visual field, Oct. 11, 1885.

clumsy rather than truly ataxic, at times being accurate, at others wide of the mark; this was particularly noticeable with the left hand. A similar condition was noticed in the lower extremities, also more marked on the left. His gait was slow and uncertain. He was unable to find words to express the defects which he felt; denying that it was muscular weakness, numbness, pain, tremor, stiffness, or vertigo which caused his cautious yet awkward movements. Uncertainty of control seemed to be the best term for it. He referred this chiefly to the right hip, thigh, and knee. His patellar tendon reflexes were rather active and about equal. In walking, he would frequently hit objects to his left, probably on account of the limitation of the visual field upon that side, and when seated at the table he would turn to the left, bringing a half profile view of the body and face to a person directly opposite. This was, probably, also due to the same cause, being an attempt to bring his limited field fully to the front of the table. There was no tenderness to pressure or pain on percussion of any part of the head. Frequent expectoration of a viscid saliva was an increasing symptom during the last few months of his life.

Diagnosis.—The symptom left hemianopsia could only be accounted for by a destructive lesion in the neighborhood of the gyrus cuneus of the right occipital lobe (Fig. 2). The locomotory disturbances appeared to me to be due to the pressure effects of a tumor on structures below the tentorium, this implying a growth of considerable size.

to one side when seated, usually forward and to the right, frequently with a twisting tendency of the body to the left. His steps became short, the feet being barely lifted from the floor, and with movements slow and cautious. Yet he could see well, reading the daily papers up to the last. On some days he was dull and listless, though never in a stupor; on others, was bright and talkative. His intellect was not impaired, and his family observed no change in his character or disposition. His sleep was natural, and hallucinations were never observed. He was extremely uncomfortable mentally, not from his visual defects, to which he attached little importance, but from his difficulties in locomotion, and disagreeable sensations.

Treatment with potassium iodide, which had been discontinued for some months, was resumed.

On February 17, 1887, he was seen by me with Dr. E. C. Seguin, who proposed an exploratory operation by trephining over the neighborhood of the cuneus, and, if found accessible, to remove the neoplasm. Dr. Weir was consulted, and after reviewing the data of the case consented to undertake the operation. The proposal was made to the patient, the dangers of the operation, and the dangers without it being fully stated. He frankly acknowledged that he would prefer the only chance, that of operation, to waiting for a fatal result by disease, as life was intolerable to him as he then was. He consented, therefore, to be operated upon.

It was considered advisable to have additional confirmations of the opinions expressed, and he was

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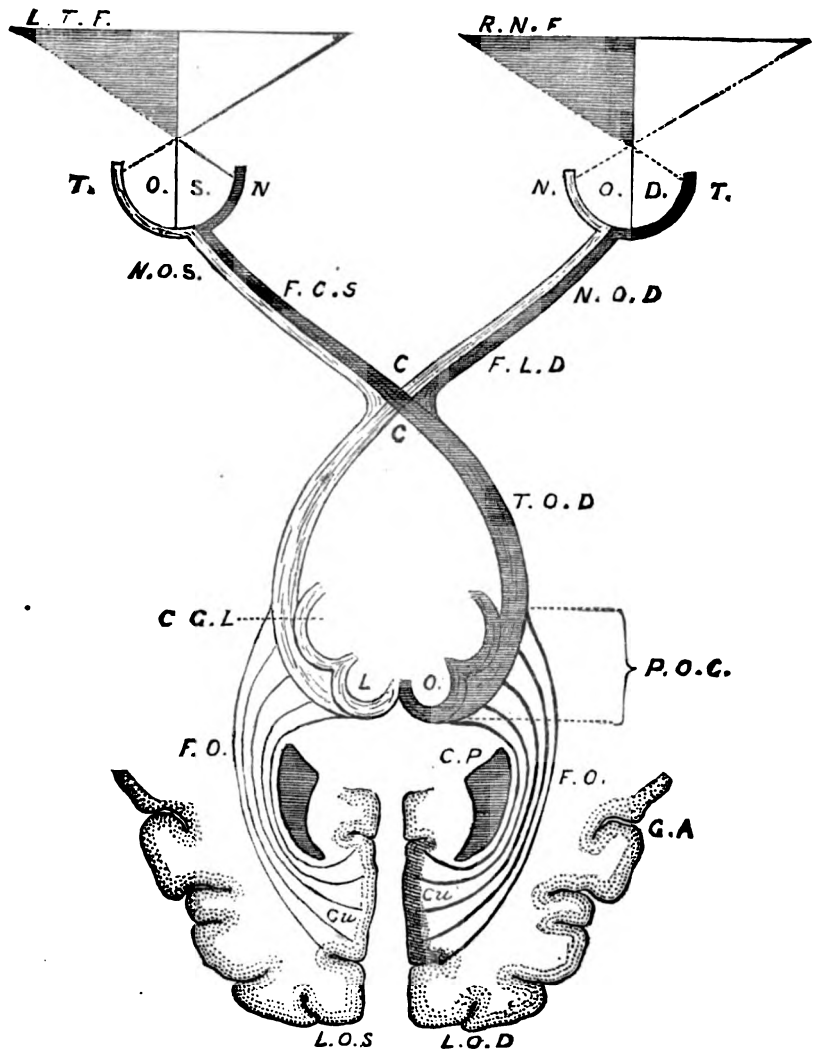
subsequently seen by me with Dr. E. C. Spitzka, who, without knowing the diagnosis which had been made, after a review of the history and an examination of the case, arrived at the same diagnosis already reached by Dr. Seguin and myself. He also concurred in recommending operation. The same conclusions were reached by Dr. E. G. Janeway. Both he and Dr. Olcott, of Brooklyn, who had seen the patient when he was first affected, agreed upon the advisability of the operation as the only chance left in a case rapidly approaching a fatal issue. They saw him with me during the week before the operation, when pressure symptoms were rapidly increasing. The characteristic feature of all his symptoms, except the hemianopsia and the optic neuritis, was their vacillating and intermittent nature, even to the oculo-motor disturbance, indicating pressure effects, or circulatory disturbance, rather than direct destructive action of the tumor.

As the principal interest of the case lies in its surgical side, the remaining incidents will be reported by Dr. Weir.

The operation was performed March 9, 1887, at the New York Hospital, whither the patient had been sent for more perfect control, and on account of the better antiseptic conditions there present. A dose of Hunyadi water was administered to move the bowels the morning of the operation. The head was also shaved, and the scalp washed with green soap and water, and then with ether, and subsequently covered for several hours with carbolic cloths, wrung out of 1 : 30 solution and by gutta-percha tissue, all secured *in situ* by a bandage.

At 3 P. M., in the presence of Drs. Birdsall and Seguin as neurological counsel, and of Drs. Bull, Markoe, Abbe, Hamilton, C. T. Bull, Olcott, Starr, Dana, Sachs, and others, the operation was undertaken. The bregma, Rolanderic, and median lines having been marked out, and the occipital protuberance with some difficulty identified, and after the patient had had a hypodermatic injection of a quarter of a grain of morphia, and had been etherized, a U-shaped flap, three inches long and three wide, with base upward, was made under a carbolic spray 1 : 30, so as to straddle irregularly the median line in its lesser part (Fig. 3), the greater part being over the right posterior cerebral lobe. The bleeding was free from this, and from the thick periosteum, and also from the skull itself. At one inch above the occipital protuberance, and the same distance from the median line—in other words, beyond the limits of both the longitudinal and lateral sinuses—the circumference of a one inch trephine

Fig. 2.



Dr. Seguin's Diagram for Hemianopsia.

Diagram of Visual Paths; designed to illustrate specially Left Lateral Hemianopsia from any lesion. L. T. F., left temporal half-field. R. N. F., right nasal half-field. O. S., oculus sinister. O. D., oculus dexter. N. T., nasal and temporal halves of retinæ. N. O. S., nervus opticus sin. N. O. D., nervus opticus dext. F. C. S., fasciculus cruciatus sin. F. L. D., fasciculus lateralis dext. C, chiasma, or decussation of fasciculi cruciati. T. O. D., tractus opticus dext. C. G. L., corpus geniculatum laterale. L. O., lobi optici (corpus quad.) P. O. C., primary optic centres, including lobus opticus, corp. genic. lat., and pulvinar of one side. F. O., fasciculus opticus (Gratiolet) in the internal capsule. C. P., cornu posterior. G. A., region of gyrus angularis. L. O. S, lobus occip. sin. L. O. D., lobus occip. dext. Cu., cuneus and subjacent gyri constituting the cortical visual centre in man. *The heavy or shaded lines represent parts connected with the right halves of both retinæ.*

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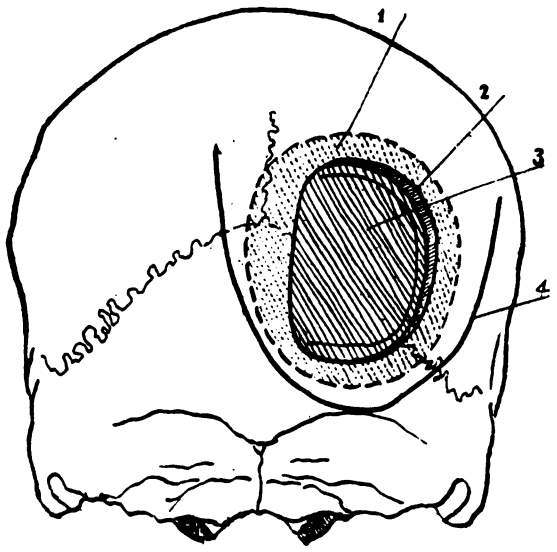
was placed, and the bone, which was rather thin,[1] cut through. A second button was removed immediately above the first, and the intervening bridge gnawed away by a rongeur forceps. The edge of this resulting aperture was further enlarged by taking away externally the cranium with the same

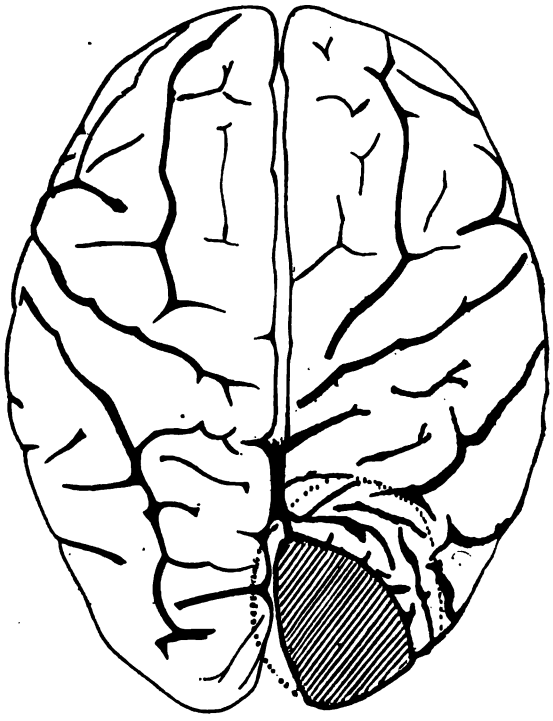
FIG. 3.



Field of operation. 1. Extension of tumor at its deepest part. 2. Opening in the skull (2¾ x 2¼ inches). 3. Flap of dura turned toward the median line. 4. Flap of the scalp.

instrument until an oval opening, measuring two and three-quarters by two and a quarter inches, was made. The dura mater, non-pulsating, rose tensely in the space, and was of a deeper hue than normal. This membrane was divided for two-thirds of the extent of the bone opening, its retained attachment being toward the median line, so as to avoid encroaching on the longitudinal sinus. As it was cut and turned back, the brain—or what was at first taken for brain, but was immediately recognized as the tumor—at once rose into the bony opening. It was of a purplish-red color, like kidney structure, and was covered over by a thin cellular tissue, with large veins ramifying in it. With a director and the edge of a spoon handle, a thin, yellowish layer of flattened out, expanded brain tissue was loosened from the tumor on its outer side (Fig. 4), and in this direction the enucleation was accomplished to a depth of nearly an inch. Similarly proceeding, but without seeing any further brain substance, the tumor was loosened easily on all sides. Additional room was obtained for manipulation by cutting away freely of the cranium externally, but all was insufficient to obtain access to the outlying edges and base of the growth. The tumor was therefore incised, and some of its softened, granular, and fatty-looking contents forced out. This somewhat diminished its size, and enabled the forefinger to be passed between the cranium and tumor, and by its aid the delicate cellular attachments that held the mass in place were felt to yield easily and enucleation became possible and the base finally reached. By now drawing the finger gently but firmly toward the cranial opening, the tumor was torn nearly completely in two, and its

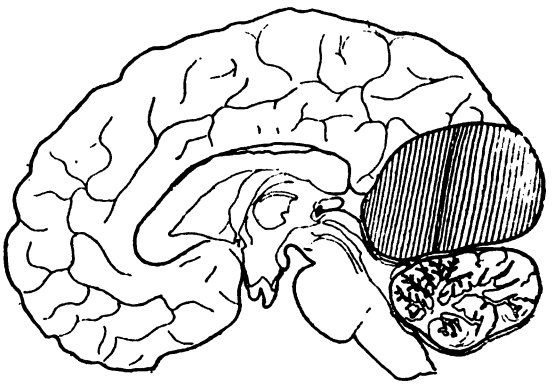
FIG. 4.



Tumor seen from above. The heavy shading shows the presenting part of the tumor when the dural flap was raised. The dotted line gives the maximum size of the tumor on a deeper level.

outer half lifted out, and then the inner part, with the help of the finger-end and nail, separated from the falx and withdrawn.

FIG. 5.



Vertical section showing tumor.

Inspection of it showed that it had been entirely removed, and that its probable attachment was toward the posterior border of the falx. A good deal of

[1] This point has been noticed in several tumor cases by W. Hale White, and is apparently due to the prolonged intracranial pressure. Guy's Hospital Reports, 1885-86.

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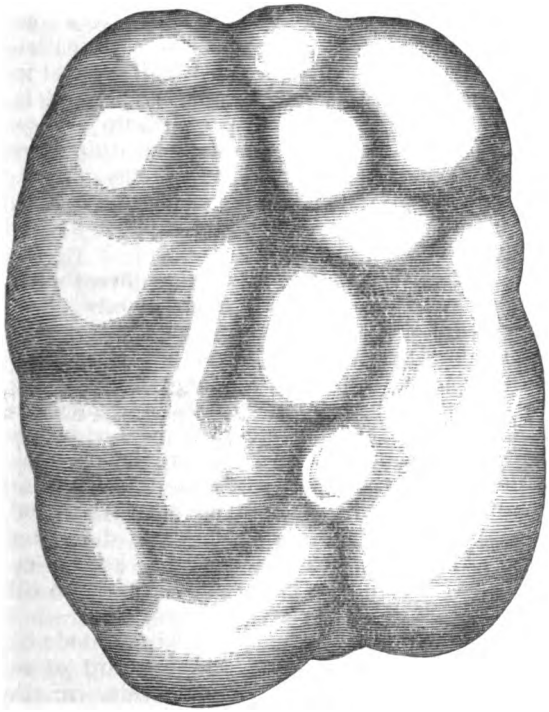
venous bleeding took place from the huge cavity left by the removal of the tumor. This was stopped with four sponges, and temporary pressure in this way resorted to. After a few minutes they were removed, and the cavity inspected by the light of a small electric lamp, which showed the immense compression of brain tissue that had taken place, the falx being crowded over toward the left beyond the median line, and the tentorium depressed to a horizontal line (Fig. 5). The tumor itself told the story better, for it, as was afterward learned, weighed one hundred and forty grammes, or five and a quarter ounces, and measured three and a quarter inches by two and three-quarters, and was two and a half inches thick (Fig. 6). Its greater circumference was eight and a half inches, and its lesser seven inches.

Fig. 6.



Tumor, seen from its base; actual size.

As the hollowed-out brain was lifted up by a retractor, two bleeding points were seen, one being in the region of the straight sinus, though not free enough for that vein, and probably belonging to the pedicle of the growth, and the other apparently was arterial, and possibly from a terminal branch of the posterior cerebral artery. The flow from each was readily checked by direct pressure, and it was determined, on consultation, to control them by packing this cavity with iodoform gauze of five per cent. strength. This was done not too strongly, it being assumed that the released brain would also contribute additional pressure, and the ends of the strips of gauze, subsequently, were, for easy extraction, allowed to emerge from the lower angle of the scalp wound. The dura mater was partly united over the gauze by several loose sutures (instead of being closely brought together, as had been done in another case), and the scalp wound closed with catgut sutures, a rubber drainage tube being introduced under the skin up to the skull opening. Over these, sublimated and iodoformed peat bags with sublimated loose compresses of gauze and absorbent cotton were secured with gauze bandages, and the patient put to bed.

The operation was well borne until the final enucleation took place, when the pulse decidedly fell, apparently from the loss of blood, which was then suddenly augmented, and which amounted, in the whole operation, to some ten or twelve ounces—the oozing being persistent from scalp and diploë, and difficult to control entirely by ligatures, clamps, and finger pressure. By bandaging the limbs and by the administration of whiskey subcutaneously his condition improved, and at the close of the surgical work he was in a fair condition. Pulse 132, but regular and of good volume. Slight diverging strabismus was, however, noticed in the left eye. He was ordered stimulants by the skin and rectum. Hot bottles, duly protected, were placed in the bed, and his head kept low, and enemata of whiskey, ʒj. and milk were ordered every two hours, with stimulants hypodermatically, if required.

The patient came out of the ether quickly, and showed considerable restlessness, moving all his limbs and having proper voice. By 7.30 P. M., two hours after the operation, the pulse had become slower, 120, but gradually weaker, and the dressings were stained with blood which had soaked through them at one point. This deterioration of the pulse continued until I saw him with Dr. Birdsall, at about 10 o'clock, when he was found very restless, and with an extremely weak pulse, and increasing marks of blood soakage in the dressings. The patient, however, was conscious, though somewhat dull. A salt transfusion (common salt, 93 grains, carb. sodæ, 16 grains, to one quart of filtered water, to which solution three per cent. of sugar is added, as suggested by Landerer[1]) of nearly two quarts was slowly injected into the median basilic vein at the right elbow with immediate improvement in the pulse and consciousness. He became also more quiet, and could answer questions, and put out his tongue fairly straight. He, however, showed signs of slight paralysis of the ocular branch of the seventh nerve on the left side, and also had decided divergent squint of the left eye. His hemianopsia was tested by Dr. Birdsall, and found to be unchanged.

As it was evident that part of his deterioration was due to a loss of blood, it became imperative to see if its continuance could be arrested. The dressings were, therefore, quickly removed, and the flaps of the scalp freed by cutting the stitches and raised, when blood was seen to escape in a small stream through the tube from the brain cavity. At first it was intended to remove the packing, and to secure the bleeding points by clamps; but his pulse, which had been raised by the transfusion, suddenly gave out, or so nearly so as to cause me to abandon the idea of resorting to any procedure of length, and to con-

[1] Centralbl. f. Chirurg., Beilage, S. 22, 1886.

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tent myself, with Dr. Birdsall's approval, of further crowding in additional iodoform gauze toward the supposed source of hemorrhage. This was done, the flaps replaced,[1] but not resutured, and dressings reapplied. Symptoms of stupor quickly came on, and fearing lest the pressure might cause this, the dressings were loosened by cutting, but the patient's condition continued alarming, and his pulse became absent at the wrist, but was restored by a second transfusion. While the circulation was thus improved, the other symptoms were not similarly affected. The transfusion was kept up experimentally,[2] though the patient's condition was hopeless, and by its means the heart was kept acting till 2 o'clock, A. M., when he died.

No autopsy was allowed on account of religious scruples, but on removing the packing of iodoform after death, in the lower and anterior part of the cavity was seen quite a large collection of coagulated blood. The tumor was reported by the pathologist of the hospital, Dr. Peabody, to be a spindle-celled sarcoma with a few round cells sparsely found in it, and not to be very vascular.

REMARKS BY DR. WEIR.—There are several surgical points of interest in connection with the foregoing case that may be cursorily dwelt upon. The most important, because it largely entered into the cause of death, was the erroneous method adopted of arresting the hemorrhage. I had previously encountered lacerated vessels in the substance of the brain, the first time in 1882, and twice since then, and had secured them by ligature or by torsion, but none of these were at a greater depth than an inch from the surface. From the effect of sponge pressure, I was led to believe in the present case that the openings in the bloodvessels could be easily controlled, in which idea I was mistaken; the bleeding was also probably favored by the headlow position which his shocked condition induced me to direct. It would have been more correct perhaps to have tried cautiously to elevate his head, and in this way diminish the blood pressure. On a review of the case, however, I believe it would have been better surgery, and in another instance I would so act, to control the bleeding at once from vessels too deeply placed for a ligature, by means of clamp forceps which might protrude through an opening in the flap, and be removed after a period of twenty-four or forty-eight hours, as is done by Richolot's forceps in the vaginal removal of the uterus.

The size of the tumor, it is hardly necessary to state, exceeded anticipation, those usually encountered being smaller, although one has recently been reported by Horsley[3] which weighed four ounces, and produced hemiplegia and coma at the time of the operation. In the present operation, though the size of the skull opening was fully two and three-quarters by two and one-quarter inches, further bone room would have allowed an easier extraction of the growth. This enlargement was most desirable toward the median line, and would have been resorted to without much hesitation had the attempt at enucleation failed, for sundry experiences of injuries over the longitudinal and lateral sinuses,[1] together with those obtained in the cadaver, had convinced me that the skull over such a sinus can be removed without opening it, and without giving rise to any incontrollable bleeding or subsequent risk. In the rehearsals made for this particular case, which were conducted on the possibility of the growth projecting from the inner side of the cuneus against the falx, as was seen in one of Dr. Seguin's cases,[2] it was ascertained that after the bone had been gnawed away over the longitudinal sinus, that the dural flap, whose attached base was toward the sinus, could be so pulled upon as to expose fairly the median plane of the brain, aided by a spatula lightly pressing the latter outward. The same procedure could be applied to the inferior surface in respect to the lateral sinus, so as to expose to a considerable depth the tentorium. Such an examination was conducted in a patient whom I shall present in a few moments to illustrate another point, and in whom a frontal lobe was largely opened up to view for the relief of traumatic epilepsy of thirty-five years' duration. The lateral sinus, I may also remark, has been exposed by others beside myself, viz., by Schondorff, Lucae, and by Knapp, to a varying extent, without mishap.

The size of the skull opening, therefore, should be large, and Horsley advises the use of a two inch trephine, and makes two openings with this instrument, connecting them with a saw and cutting forceps. The apprehension that this large vacuity in the calvaria would subsequently expose the patient to the risk of easily inflicted cerebral injury, is not so great as imagined, and can be greatly lessened by resorting to the expedient first practised elsewhere in the body by Macewen, of employing bone grafts, and by sprinkling, as Horsley does, over the dura after its edges have been sewn together, the chopped-up disk of bone, which is to be carefully kept warm till the completion of the operation.

A further step in this direction has been made by Poncet,[3] who has shown that pieces one-third of an inch long and one-sixth of an inch wide, can be similarly used. I recently ventured, in the case of trephining for epilepsy which was just mentioned, after exposing the brain and dividing an adhesion extending between the pia and dura mater, through an opening nearly two and half by three inches, to replace, after closing the dural opening, the two one inch disks of bone which had been removed by the trephine. These had been wrapped in a towel wrung out of warm carbolic solution, which in its turn was then placed in a jar immersed in warm water. The operation lasted fully half an hour before the bones were put back. It is now

[1] Great sensitiveness of the dura, spoken of by experimenters, was strongly marked in this manipulation.

[2] Supporting Schramms' view that the salt infusions have only a temporary benefit. Centralbl. f. Chirurg., No. 30, 1886.

[3] Horsley: Topography of the Cerebral Cortex, Amer. Journ. of the Medical Sciences, April, 1887.

[1] See an article on the Surgical Treatment of Brain Suppuration following Ear Disease, by the writer, Medical Record, April 9, 1887.

[2] A Contribution to the Pathology of Hemianopsia of Central Origin, by E. C. Seguin. Journ. of Nerv. and Mental Diseases, January, 1886.

[3] A. Poncet: Des greffes osseuses dans les pertes de substance étendues du squelette. La France Médicale, 1886, t. ii. No. 132.

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seven weeks since the operation, and you will perceive, in the patient who is now submitted to your inspection, that the wound is all healed, save at one point over the eyebrow, where an opening was made recently downward through an obstructed suppurating frontal sinus to the nose, to permit drainage, and that no communication leads to the circles of bone, which can be felt above the point, solid, resisting, and painless. Later still, Dr. McBurney, at St. Luke's Hospital, has repeated this procedure, after an exploratory operation, for brain disease.[1] This plan, if corroborated by further experience, will relieve our minds of the objections held to large openings in the skull, and will facilitate greatly bolder surgical explorations.

Up to the present time the opening of the skull for the extraction of a contained tumor has been resorted to eight times, once by Bennett and Godlee in 1884,[2] three times by Horsley[3] in 1886—which with the one above narrated make up the five cases of removal of a tumor, the result of which in two of Horsley's is yet unknown, but presumably it was a successful one.[4] Of the three other cases, in one by Hirschfelder and Morse[5] in 1886, the tumor was found, but only a part was removed, the patient dying shortly afterward from suppurative encephalitis; in the two remaining cases no tumor was found, though in the one operated on by me and reported at length in THE MEDICAL NEWS for March 5, 1887, at the post-mortem, two and a half months later, a tumor was found pressing upon the cerebellum and spinal cord. The last case is the one reported by Dr. G. M. Hammond, and made the subject of the paper succeeding this, to be read before this Society, in which the search nearly succeeded, as was shown afterward at an autopsy. The cause of the symptoms was the presence of three cysts adjacent one to another, and thought to be of hydatid origin.

For further remarks on the difficulty of relieving the pressure of a tumor of the brain by surgical treatment, I must refer you to the recent collection of 100 cerebral tumors by Dr. W. Hale White,[6] the excellence of which I have elsewhere[7] commented upon. I dare, however, to repeat as facts of weight gleaned from this paper, that multiple tumors are common and that only about ten per cent. of all kinds of growths, and only four per cent. of the sarcomatous tumors, could have been removed by operation, *even though a correct diagnosis could have been made.* Concerning the latter point the members of this Society can better judge of its difficulties than I can—but the art of cerebral localization is, thanks to the efforts of neurologists and physiologists, developing with great rapidity, and with such help surgery will be of more and more avail in rescuing patients otherwise condemned to paralysis and death.

[1] Had the present case permitted, the same course of replacing the trephined bone would have been followed.

[2] Lancet, 1884. p. 1060, and 1885. p. 13.

[3] One published in extenso in British Med. Journ., Oct. 9, 1886, and two others briefly alluded to in the Amer. Journ. of the Med. Sciences, April, 1887.

[4] See his Article cit. supra.

[5] Pacific Medical and Surgical Journal, April, 1886, p. 40.

[6] Guy's Hospital Reports, 1885 and 1886, vol. xxviii.

[7] THE MEDICAL NEWS, March 5, 1887.

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REMARKS BY DR. BIRDSALL.—In concluding, I may be allowed a few remarks concerning the tumor which was found. Owing to its large size, so much of the occipital lobe was compressed by it that the case is of little value for the purpose of determining the limitation of the visual area in the occipital lobe. The growth was a sarcoma, originating in the meningeal structures, and producing destruction of the cerebral tissues by pressure alone; no part of it was infiltrated into the cortex. The absence of severe headache in this case should be noted, as it is usually a prominent symptom of tumor involving the meninges.

That convolutions may be reduced to the thinness of paper by such a process is well known, and in this case the apex of the occipital lobe was literally crushed between the tumor and the cranium, while the more frontal portions were compressed in that direction. The parts beneath the tentorium were also compressed, as the symptoms during life led us to infer. The remarkable feature of cases with so large a tumor is not so much that they give rise to localization symptoms, as that they exhibit so few.

One of the most important lessons that the study of cerebral tumors teaches is that growths remaining limited to the meninges may attain a large size before disturbing the function of neighboring parts of the brain; frequently giving rise to less marked symptoms than very small growths, which infiltrate the cortex. In the deeper conducting tracts of the brain, where fibres run more in parallel courses, growths may attain large size without producing much irritation or destruction, by slowly pushing the fibres aside; this gradual expansion could not go on in the felt-like mass of fibres in the cortex without destructive action resulting. Thus, in one of my reported cases[1] a sarcoma the size of a hazelnut displaced the cortex of the arm area, producing spasm and paresis of the arm. While a similar growth under the same area of the opposite hemisphere, but a few lines deeper yet not reaching the cortex, gave rise to no symptoms whatever. Again, when tumors destroy by pressure, the softer mass of the growth may injure less than the rigid walls of bone against which the cerebral tissue is compressed; so that regions away from the tumor may give signs of impairment before those in contact with the tumor. These are some of the contingencies (and there are others) which will probably always constitute obstacles to the correct localization of tumors, as guides to surgical operations for their removal.

While we have much to hope for respecting a more complete knowledge of the functions of different cortical areas and subcortical tracts of the brain, increase in this class of facts for the practical purposes of brain surgery will be of little avail. Indeed, our knowledge of functional localization is already in excess of other factors in the problem. The degree of interference which neural tissue will sustain in different regions is an "unknown quantity" to such an extent that it renders further refinement of functional localization almost super-

[1] Arch. Med., vol. ix. No. 3, 1883.

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fluous. And it may be said that from the standpoint of functional localization we are probably as well able to act as the surgeon's guide in the removal of cerebral growths as we ever shall be. This is not a designedly pessimistic statement, but rather, a hint that there will probably never be a better time than now for modern surgery to come to the front, and with her vastly improved methods, seek to eliminate to the extent possible the dangers and difficulties which yet attend operative work upon the human brain. Surely, the extreme fatality of intracranial neoplasms is a high warrant for taking an extreme surgical risk. The coöperation of neurological science and surgical art, in the present state of each, can hardly fail to build up an experience which will in some cases save life that would otherwise be lost.

A CASE OF NEPHROLITHOTOMY DURING THE FIFTH MONTH OF PREGNANCY.

BY LOUIS McLANE TIFFANY. M.D.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF MARYLAND.

ON February 16, 1887, I saw, with Drs. E. P. Irons and G. W. Miltenberger, Mrs. M., aged twenty-seven years. Her history showed that for several years she had suffered, at irregular intervals, with pain in the left loin, about the region of the kidney; occasionally the pain would shoot downward to the groin. She had been often under medical treatment. On two occasions when she applied to Dr. Irons, during the past few years, pus existed in the urine, but in small quantity; blood was never noticed in the urine.

Seven months ago the patient under consideration married, and two or three months later became pregnant. Two months ago, being three months pregnant, she slipped on the ice and fell forcibly in the sitting posture; great pain in the left side and loin was now complained of, and Dr. Irons was called to attend her; he found it necessary to give large doses of opium. Mrs. M. was no longer able to lie on the left side in bed, and found some relief when bending forward and to the left. A fortnight after the fall Mrs. M. attended a ball, wearing her wedding dress, which was extremely tight, thanks to pregnancy; during the whole evening she experienced much pain in the loin. Since the ball, a period of about seven weeks, pain in the region of the left kidney has been constant; hyperæsthesia has been marked, not only over the same region, but also over the left half of the abdomen; vomiting frequent, appetite capricious; urine ill-smelling, and contained much pus; temperature elevated, pulse increased in frequency; rest either night or day was only to be obtained by opiates.

Dr. Miltenberger now met Dr. Irons in consultation, and a day or two later I was added to the council. The diagnosis made prior to my seeing the patient was "pyelitis, probably from renal calculus." In this opinion I concurred, and operated at my first visit for the removal of the stone. Ether was employed as the anæsthetic, and the operation conducted under antisepsis. Under anæsthesia no tumor or hardening was made out in the loin. At my request, Dr. L. E. Neale examined the generative organs by touch, finding the pregnancy normal.

The usual incision below the last rib and parallel to it was made, the kidney exposed and examined; to sight and touch it was normal, moving freely with respiration. The fat and fascia around the kidney seemed healthy. I then exposed the kidney as far upward as possible and found an elastic spot just under the rib. I here entered a knife, dividing the kidney tissue and evacuated ill-smelling pus. This abscess was in the kidney substance, and my finger discovered no communication with the pelvis. I then explored the inside of the abscess carefully with a probe, which in a moment passed somewhat deeply and touched a stone. Along the probe was passed a director, in the groove of which I slid a pair of slender forceps, opened them widely tearing kidney substance and at once passed my finger into the pelvis, where it rested in contact with a stone.

The calculus was easily extracted. I passed a black woven bougie nearly its whole length down the ureter and greatly regretted that I had not an instrument long enough to be passed into the bladder, in order to test the possibility of such a manœuvre.

The wound was thoroughly irrigated with bichloride solution, 1:4000, a large drainage-tube inserted into the pelvis of the kidney, and an iodoform gauze dressing applied. Vomiting occurred but twice or three times after the operation; pain and hyperæsthesia ceased; convalescence was rapid, the thermometer marking 99° the evening of the third day after operation.

The drainage-tube was removed on the sixth day; four days later no urine passed from the wound in the back.

Three days after the removal of the drainage-tube the patient complained of pain along the course of the ureter, the temperature and pulse rose, there was hyperæsthesia over the left half of the abdomen, and vomiting; four days later the symptoms ameliorated and the patient's condition became normal. The discomfort, etc., was attributed to the passage of urine along the ureter after the removal of the tube from the kidney, carrying, of course, the "cleanings" of the upper part of the ureter.

A slight fever followed the removal of the drainage-tube from the kidney in the patient upon whom I did nephrolithotomy in 1885 (THE MEDICAL NEWS, May 23, 1885), but I did not deem the small elevation of temperature worthy of attention. With Mrs. M. the fever was accompanied by frequency of micturition and slight bladder tenesmus, as though there might be irritation where the ureter passes through the coats of the bladder. Inasmuch as pus was present in the urine, and no urine came through the loin, there was, of course, no obstruction in the passage from the kidney to the bladder; while the drainage-tube remained in the wound, there was little or no pus in the urine, showing a comparatively healthy right kidney.

At present the wound in the loin is healed, the urine contains pus in diminishing quantity, and the pregnancy progresses physiologically. The stone is

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calcium oxalate and weighs thirty grains; it is shaped somewhat like a cocked hat.

I have entitled this case one of nephrolithotomy, according to Morris's definition, for there was no tumor in the loin even when searched for under anæsthesia. The abscess found was strictly within the kidney tissue, the kidney not being enlarged so as to be recognized as a tumor. The abscess, I believe, was formed in a Malpighian pyramid, the outlet of which was closed by the stone lodged in a calyx; my probe passed through the corresponding papilla, and grated against the obstruction at once.

This is, I think, the first reported case of nephrolithotomy being done upon a pregnant female. Gilmore's case was a nephrectomy. It is interesting to note that in no wise did the operation or the pregnancy interfere at all one with the other. The movements of the child were not noticed as more violent than natural, at the time of operation or subsequently, and there was nothing denoting disturbance of the reproductive system.

RHIGOLENE AND OIL AS A VEHICLE FOR SPRAYS.

PRELIMINARY NOTE.

By AUGUSTUS STABLER, M.D.,
of Lawrence, Mass.

For several years past I have been alive to the fact that oil is far less irritating to the nose and throat than any mixture or combination that has water as a basis. This irritating quality is not wholly overcome by the addition of glycerine or honey to the water, and these substances greatly impede its passage through an atomizer. Water, moreover, is not a good basis for spray, for it collects and condenses too readily—hence the common observation that a spray of water does not pass the chink of the glottis except in very small amount. Olive oil or almond oil may be passed through an atomizer if the apparatus be of suitable construction, in perfect working order, and kept at a warm temperature, but they require a higher pressure of air and are very liable to gum the tube or orifice.

Less than a month ago, the idea occurred to me that perhaps a mixture of rhigolene with one of the expressed oils would be free from the above objections. This proved to be true. A mixture of two drachms of rhigolene (by measure) with six drachms of olive oil, or almond oil, requires no more pressure than water, to convert it into the finest and most permanent spray that I have ever seen issue from an atomizer.

If sprayed into the mouth, the lips being closed upon the tube and the patient being instructed to breathe very quietly through the nose, the spray issues like a cloud of smoke from each nostril, and is so permanent that I have observed the little globules of oil floating in the sunlight more than thirty minutes after the atomizer ceased. It is perfectly unirritating to the most sensitive tissues, and, indeed, seems in some cases to act as a mild local anæsthetic. This spray does not catch fire when directed into an uncovered lighted gas jet, and does not produce general anæsthesia, thus being free from the objections attending the use of pure rhigolene.

In connection with my friend, Mr. John H. Greer, an accomplished pharmacist of this city, I have made a large number of experiments for the purpose of determining what useful drugs are soluble in this mixture.

We find that the following are readily soluble:

Copaiba balsam, cubebæ ol., camphor, eucalyptol, iodine, iodol, iodoform, menthol (crystals), naphthalene (crystals), phenol (crystals), resorcine, sassafras ol., salol, terebinthinæ ol., thymol.

Resorcine is insoluble in rhigolene, but dissolves in olive oil to the amount of nearly five per cent. The mixture will hold about three per cent. in solution. Every oil that we have thus far tried seems to be readily miscible with the rhigolene and sweet oil, so that the entire list of essential oils and turpentines may, *a priori*, be added to the above list.

We have not found any astringent that will dissolve in olive oil or in the mixture containing it, but *iodo-tannin* may be prepared as follows:

Take a saturated tincture of iodine and dissolve in it as much tannin as it will hold. This will mix with castor oil in any proportion, and the mixture may be thinned with rhigolene to the desired consistence. It makes a very handsome, clear red solution, and though slightly irritating, is not excessively so, and the irritation very rapidly subsides.

Cocaine is insoluble in the olive oil and rhigolene mixture, but like tannin makes a perfect solution if first dissolved in alcohol and then mixed with castor oil and rhigolene.

It has been my object in this paper merely to indicate the wide range of applicability of a mixture of rhigolene with oil as a basis of sprays, and leave a discussion of results to future papers, and perhaps to other observers whose clinical opportunities are greater than mine.

8 Charles Street, Lawrence, Mass.

THE STOMACH:

IMPORTANT POINTS IN ITS ANATOMY AND PHYSIOLOGY, AND THEIR APPLICATION IN PRACTICE.

By A. W. P. LEUF, M.D.,
of Philadelphia.

The object of this note is briefly to call attention to the normal position of the stomach, its tubular shape, some points in its physiology, and their bearing upon treatment. The paper is the outcome of five years of thought, some vivisections, post-mortem observations, and clinical experience. It is due to Dr. A. H. Buckmaster, of Brooklyn, to acknowledge that he was the one who, more than five years ago, called my attention to the tubular condition of the stomach, as shown in Kussmaul's *Physiology*.

The normal position of the stomach is almost vertical. This is best noticed along the lesser curvature, for the greater has a long roundabout curve, which, when the organ is distended, gives the impression of its being horizontal in position. The pylorus is relatively fixed; the cardiac orifice absolutely so. The lesser border connecting them is

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also capable of but limited motion. The greater margin of the stomach is unattached and freely movable. During distention, the gastric pouch is forced mainly downward and forward, as well as upward and to the left. The lesser curvature is comparatively stationary, while the greater is the most movable portion of the organ. On this account the stomach, when viewed along the pyloric or visible half or third of its border, appears more horizontal in proportion as it becomes distended.

The cardiac pouch, instead of projecting to the left during distention, actually moves upward against the base of the lung, and with but a moderate inclination to the side.

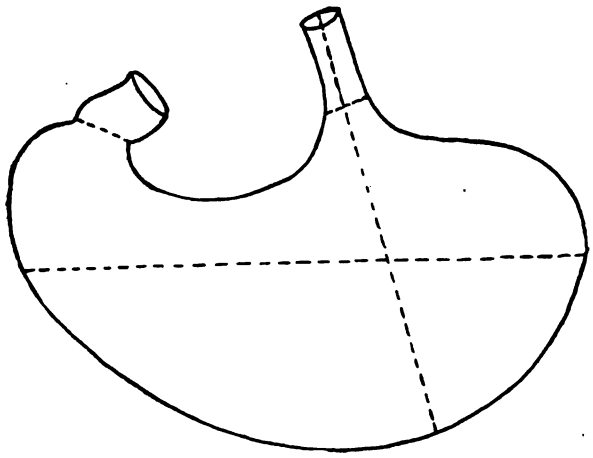
The pyloric orifice is variously situated in front of the upper lumbar vertebræ, and rarely more than two or three centimetres (about one inch) to the right of the median line. It is often on the median line, and occasionally all of the stomach lies wholly within the left abdominal cavity.

The heart normally projects further to the right than does the stomach.

The cardiac orifice is further from the cardiac end of the stomach and relatively nearer the pylorus than is generally supposed. It is almost midway between the two extremities of the organ, but nearer the cardiac end. The œsophagus, instead of entering the stomach at right angles, or nearly so, forms a very obtuse angle with the right or lesser border.

The shape of the stomach varies with the degree of distention. The same, of course, is true of the thickness of its walls. The shape of the stomach, as generally and erroneously pictured, is shown in Fig. 1, which is an outline of the organ shown in

FIG. 1.



Outline of stomach pictured in Gray's *Anatomy*, being an illustration of what is far from the normal shape and position of the organ.

Gray's *Anatomy*. The normal shape and position of the distended organ are depicted in Fig. 2, while its changed appearance is shown in Fig. 3, when empty. This latter is quite appropriately called a "tubular stomach." Its calibre is very small, the mucous membrane deeply corrugated or folded, the muscular coat contracted and thickened, and the external measurement of the stomach not much greater than that of the jejunum when moderately distended. It is very thick, however, and quite round instead of flat. The cardiac end is not obliterated in the tubular condition, but appears jutting upward very much like the hump on Punch's back.

FIG. 2.

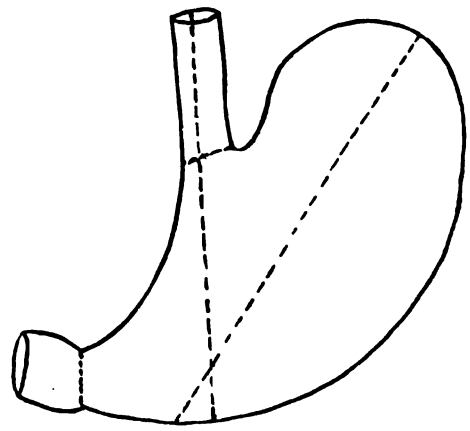


Diagram of a moderately distended stomach, showing its correct anatomical shape and position.

FIG. 3.

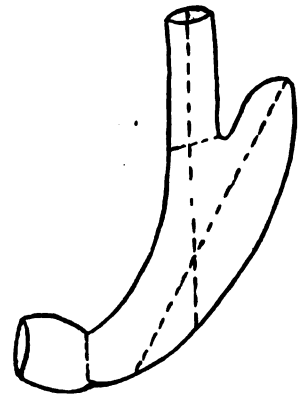


Diagram of an empty, contracted, so-called "tubular," stomach, showing that the position of the two orifices and lesser curvature remain undisturbed during the distensile changes of the viscus.

Why is the stomach ever tubular? is a proper question. Let us see. In an experience that includes the making of many hundreds of autopsies, especially in cases of sudden death, it has been my good fortune to see quite frequently the human stomach in tubular form. As well as I now remember, I cannot recall an instance in which a perfectly healthy stomach was not found to be tubular in a person having met with sudden death eight or nine hours after a meal. For instance, I have, on several occasions, been called to examine the bodies of apparently healthy laboring men, who, having eaten a supper between 6 and 7 P. M., spent a quiet evening, and then went to bed, in which they died the next morning. These deaths were due to various causes, such as cerebral apoplexy, sudden heart failure, ruptured aneurism, fatal accidents, murder, and one

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curious case of bronchial lymphadenoma, which choked the patient in less than an hour by compression of the trachea and primary bronchi. In all of these cases death occurred before there was time or opportunity to breakfast, and when nothing had been taken during the night. These stomachs were all empty and tubular—in other words, contracted, as we frequently find the colon, especially on the left side.

Gaseous distention of the stomach, though frequently found, is not the rule, nor is it strictly physiological. The firm contraction of every part of the alimentary tract, when empty, is normal and its distention with gas is abnormal.

These post-mortem experiences amply show that the tubular stomach is a fact in human beings, and exists when it has normally contracted upon the last remnant of its nutritive contents.

Vivisection upon dogs, cats, and rabbits, establishes the same facts with reference to them. It is only necessary, and especially in the dog, to wait a much longer time for the stomach to become empty and hence tubular. It may require as long a time as forty-eight hours. Care was taken not to disturb the natural process by vomiting the dogs or other animals. They all recovered and regained their liberty, or were sacrificed at the same time for some other end. Some full and partly full animal stomachs were also examined. The abdomen was opened and the walls elevated so that the stomach could readily be seen. The organ itself was not touched. A soft rubber catheter, connected with a small glass funnel, was introduced a short distance into the œsophagus, down which a little water was poured. In a moment, the stomach was seen to become slightly distended. This was followed by contraction, and the water poured into the duodenum. Its passage through the stomach occupied but a few seconds, and produced a double wave, one of distention, marking the entrance and passage of the first part of the water, and the other, one of contraction, indicating the progress of the latter portion of the liquid. In these instances the water was lukewarm; when cold or hot, it sometimes passed a little slower, and at other times not, and this difference seemed to be entirely due to the contraction of the pylorus caused by the rise in temperature. The difference in the time required to pass through, however, was not great.

When the water was passed in continually, and especially in large amount, the stomach became moderately distended, but the pylorus remained partly open, so that most of the water continued passing down, and could readily be seen by the waves and vermicular motion it generated in the gut.

In the full and partly full stomachs, the water, instead of mingling with the food, as we are so generally taught to believe, passed along rather quickly between it and the lesser curvature toward the pylorus and through this opening into and down the gut.

In this connection it is well to mention an observation made by Dr. Benjamin F. Westbrook. He noticed during the process of washing out stomachs that when he attempted to siphon the water back, it failed to return in several instances. In a letter to me, upon the subject, he writes as follows: ". . . . . instances in which, on attempting to wash the stomach, the water all mysteriously disappeared, and would not be coaxed, bullied, or cajoled into returning through the siphon—it had, evidently, passed directly onward into the duodenum; and the inference is that, in normal stomachs, with a proper normal tonicity, the tubular form was maintained during the period of rest, and that such stomachs would allow fluids to flow directly through into the duodenum."

The reason for this seems clear. The pylorus is decidedly reflex in its action. Unirritating fluids, or semifluids make no impression upon it, and they are allowed to pass through the partly open orifice. Solids and irritant fluids stimulate it to firm contraction and consequent occlusion. In exceptional cases, irritant bodies may have entered the stomach, which so stimulate its walls to contraction, that they are forced through either one or both of the two orifices. But this is an abnormal condition.

As soon as food, therefore, has been sufficiently reduced in consistence, it no longer affects the pylorus, and is permitted to pass through, and thus the stomach contents are diminished, except as far as the removal of some directly through the gastric wall. Water, being an unirritating liquid, readily passes through. It meets with no obstacle, therefore, in an empty stomach; does not linger there, but simply passes directly through to the gut. When the stomach is full of solid food the same is true, only that the water passes along the lesser border with a large bolus of food on one side, instead of gastric wall all around. When the stomach contents are largely fluid, the water most likely mingles with this, and is not allowed to pass so quickly.

These few facts are of daily use in practice. I will give reasons and clinical experience. Of course, a knowledge of the correct anatomical position of the stomach is of great value to the laparotomist having designs upon it. No more need be said on that score.

The experiments of several observers, whose names are well known to physiology, upon the secretion of gastric juice in the human stomach, through gastric fistulæ, have determined that this juice flows only periodically. It is called forth by the stimulus of food in direct contact with the gastric mucous membrane. Direct contact is required. The intervention of normal gastric mucus prevents or modifies the reflex action that would cause a copious outpouring of the gastric juice, for it prevents direct contact between the food and mucous membrane.

The flow of mucus is constant. It is especially noticeable during the intervals between the periods of digestion. Foreign bodies, when introduced within the empty stomach, whether it be distended with gas or not, increase the flow of mucus without causing the secretion of the digestive juice. Mucus is normally secreted during the night. Some of its liquid portions are absorbed. That which is left behind is, therefore, thick and tenacious.

This teaches us that a normal stomach in the morning contains a considerable quantity of thick,

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tenacious mucus that is spread over, and adherent to its wall. It also shows that, if food enters at this time, it will become covered with a coating of the tenacious mucus, and the gastric wall being already so covered, there cannot be the requisite direct contact between the food and stomach. The mechanical stimulus of food, however, causes an increased flow of mucus. This renders that already present less tenacious and eventually permits the food to touch the mucous membrane and a flow of gastric juice, hitherto delayed, is the result; then digestion begins.

The tubular or contracted stomach with its puckered mucous lining, always normal in the morning before breakfast, is not in a condition to receive food. The mucus it contains interferes with prompt digestion and its firm contraction is an obstacle to the free circulation of blood through its vessels.

A goblet of water, taken before breakfast, does several things. 1st. It passes through the stomach into the small intestine in a continuous and uninterrupted flow. 2d. It partly distends the stomach, stretching, and, to some extent, obliterating the rugæ. 3d. It thins and washes out into the gut most of the tenacious mucus. 4th. It increases the fulness of the capillaries of the stomach, directly if the water is warm, and indirectly, in a reactionary way, if it is cold. 5th. It causes peristalsis of the whole alimentary tract, wakes it up (so to speak), and gives it a morning's exercise and washing.

The beneficial effects of a drink of water before breakfast may account for the desire for water at this time of the day, particularly on rising. How often we find that when we are very hungry (when our stomachs are tubular and filled with mucus) we want a drink before beginning to eat.

Moderately cold water taken into the stomach chills locally, it stimulates to contraction and produces a reaction. A warm, healthy glow succeeds the contraction due to the cold. The clean and hyperæmic mucous membrane is in excellent condition to receive food, which now can come in direct contact with the bare gastric wall. The reflexes act to best advantage. A copious flow of digestive juice is the result, and the food not being covered with mucus, digestion is easy and rapid, for it takes place under the most favorable conditions and in a minimum time.

Care must be taken not to give cold water when the circulation, either local or general, is so feeble as to make reaction improbable. We should not risk it in advanced age, nor in the feeble, whether old or young, nor should it be given in local troubles like chronic gastric catarrh. In these cases it is best to give warm, or hot, water. The addition of salt is very beneficial, both as regards taste and the effects of sodium chloride in preventing the formation of parapeptones, as was first shown by Dr. R. G. Eccles, of Brooklyn. Care must be taken not to give cold water when it will induce exaggerated reflexes, for instance, in the case of children, where it has been known to produce fatal intussusception of the bowel, or a severe "cold," or diarrhœa at all ages.

Dr. A. G. Kimberly, of Brooklyn, informs me that he has noticed and experienced the beneficial effects of sea-water digestion, and says that sea-going people are often in the habit of drinking sea-water before meals to improve the digestive process. "It not only does this, but sometimes entirely prevents nausea on rising," says Dr. Kimberly.

I have frequently ordered patients suffering with chronic gastric catarrh to drink a glass of warm or hot water before breakfast. It was followed by gratifying results; salt may be added with additional benefit in almost all instances. In fact, it is proper to give water before meals, as it washes out of the stomach the mucus that has accumulated since the preceding meal. When taken during meals its effects are good in washing out digested food and exposing new surfaces to be acted upon by the gastric juice.

The writer, at one time thinking it inconsistent with the laws of physiology to eat soup before meals and thus dilute the digestive fluid, took his after the usual meal. This did not agree nearly as well as taking it at the beginning. Such a time-honored custom, however, as eating soup at the beginning of a meal, could only have been so persistently adhered to because of its having been found by experience to be the most appropriate time. It does exactly what warm or hot water with the addition of salt does, and more, in that it is nutritive and excites the flow of gastric juice.

Pepsin is a catalytic body and a given quantity will work indefinitely provided the effects of its work are constantly removed so as to enable the catalytic body to come in contact with new material. This has again been recently shown by Dr. Eccles in his experiments on drugs and digestion.

Another fact worthy of note in this connection is that vomiting may very often be prevented by a patient remaining on the right side. This I would account for principally in two ways:

First. Pressure by the liver upon the stomach and duodenum is prevented.

Second. Gravity attracts the gastric contents to the pylorus, and the spleen, by its weight, tends to crowd the food out of the cardiac pouch toward the duodenal orifice. I do not mean to say that this postural treatment will always prevent emesis, but I do claim that it will often do so when nothing else will, especially in those cases where vomiting is due either to pressure from the liver, relaxation of the cardiac orifice, spasm of the pylorus, or general irritability of the stomach, or any or all of these combined. This fact has often been clinically confirmed.

The following is a brief summary of the major points I have sought to bring out in this note:

1. The position of the stomach is more nearly vertical than horizontal.
2. An empty stomach, if in good tone, is always tubular.
3. A tubular stomach should be the rule on rising.
4. Non-irritating liquids pass directly through the tubular stomach.
5. They do likewise if the stomach contains food, and in such cases pass along the lesser curvature.
6. The morning mucus contained in the stomach hinders or retards digestion.

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7. Water drank before meals dilutes and washes out this mucus, stimulates the gastro-enteric tract to peristalsis, and causes hyperæmia of its lining membrane, thus greatly aiding digestion as well as elimination.

8. Cold water should be given to those who have the power to react, while warm or hot water must be administered to all others.

9. Salt added to the water is very beneficial in preventing the formation of unabsorbable parapeptone.

10. It is perfectly proper to drink water before, during, and after meals.

MEDICAL PROGRESS.

Renal Calculus treated by Solvents.—Dr. Ralfe exhibited at a meeting of the Medical Society of London, reported in the *British Medical Journal* of March 26, 1887, a specimen of renal calculus passed after six weeks solvent treatment. It was oat-shaped, eroded on the surface, and measured one-third of an inch in length, and weighed three and a half grains. It was composed chiefly of oxalate of lime, with a few crystals of uric acid scattered over the surface. The remedies employed were lithia and turpentine in a mixture and Dover's powder at night. The patient was directed to drink at least three pints of filtered rain-water daily. Under this treatment the urine, which at first had a specific gravity of 1.025, and contained much blood and pus, became clear, and the specific gravity fell to 1.014, while the attacks of colic diminished. Dr. Ralfe's method differed from that proposed by Sir William Roberts in that he did not seek to diminish the size of the calculus by chemical solvents, a doubtful and difficult process, but to check its growth by keeping the specific gravity of the urine low, and also by diminishing existing pyelitis. Dr. Ralfe observed that there were many calculi small enough to pass easily down a ureter, which were prevented doing so by the swollen condition of the orifice. He illustrated this by a specimen which had been retained for several days, owing to the patient suffering from gouty pyelitis, though the concretion was quite minute; as soon, however, as the pyelitis was relieved, the calculus slipped down easily. In addition to distilled water and turpentine, Dr. Ralfe spoke highly of benzoate of lithia or potash. The mode of treatment should be adopted in the following instances: 1, when the calculus was recently formed and still small, and was retained chiefly by the swollen condition of the mucous membrane of the kidney; 2, in recurrent calculi—the pisiform concretions of elderly people, in these cases the calculi passed before the administration of remedies were of the size of a pea, afterward they diminished to that of a mustard-seed (a specimen shown), or ceased altogether; 3, in cases when, owing to the obesity of the patient or his broken health, nephrolithotomy was not advisable. In these instances it might be hoped that the distilled water might at length lead to the disintegration of the calculus, as in a case reported by Dr. Ralfe (*Path. Soc. Trans.*, vol. xxxiii.), whilst the terebinthine remedies undoubtedly diminished the pyelitis and the tendency to colic.

Mr. B. Jessett said that larger calculi than those shown had often been passed without treatment, the benefit of which was rather in the increase of the amount of urinary flow. He doubted whether there is any really solvent action.

Dr. Ralfe said he attached the greatest importance to relieving the pyelitis. He certainly did think that a solvent action is produced under favorable circumstances.

The Prophylaxis of the Teeth.—Miller, of Berlin, in an article upon the care of the teeth, published in the *Therapeutische Monatshefte* for March, 1887, gives the following as useful formulæ:

℞.—Calcii carbon. præcip.	. .	℥ss.
Cort. chin. fusc.	. .	℥i.
Conch. præparat.	. .	℥i.
Pulv. myrrh.	. .	℥ss.
Pulv. carophyll.	. .	℥ss.
Ol. cinnamoni	. .	gtt. 10–15.

M. exact. f. pulv.

The following is recommended as an efficient tooth soap:

℞.—Magnesiæ carbon.,		
Rhiz. irid. florent.,		
Talci,		
Sapo. medicat.	. .	āā grs. 75
Ol. menth. pip.	. .	gtt. 10.
Mucilag. gum. arab.	. .	q. s.

After a series of experiments the writer has fixed upon the following mouth-wash as the best germicide and antiseptic for use in the mouth:

℞.—Acid. thymic	. .	grs. 4.
Acid. benzoic	. .	grs. 45.
Tinct. eucalypt.	. .	℥ss.
Alcohol. absol.	. .	℥ss.
Ol. gaultheriæ	. .	gtt. 25.
(Sive ol. menth. pip.	. .	gtt. 20.)

M. D. S.

Of this liquid a teaspoonful should be put in a glass of water, and the mouth should be rinsed after each meal, and before retiring.

An Economical Method of Preparing Antiseptic Gauze.—Dr. Gerster, of New York, in an article in the *New York Medical Journal* of April 2, 1887, describes his method of preparing gauze as follows:

Gauze—that is, *cheese or tobacco cloth*, as it is called by the trade—can be procured at any dry-goods store for a trifling sum of money. Twenty-five yards of this fabric are divided into four equal parts. Each of these is folded eight times, and the piece is rolled up loosely and tied with a string. These four pieces of gauze are next made absorbent by freeing them of their oily contents adhering to the cotton from the gin or mill. They are put into a common wash-boiler, covered with water to which a pound of washing soda or saleratus was added, and boiled for an hour. After this they are rinsed in cold water for ten minutes to free them from the soda, are passed through a clothes-wringer and placed in a stone or glass jar or an enamelled kettle, filled with a corrosive sublimate lotion of 1 to 1000 strength, to remain therein for twenty-four hours. From this they

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are passed through the wringer again, and hung up to dry over night when the air is freest from dust. The string put about each piece should not be removed until the time of drying, as it will keep the folds from getting disarranged. The dried pieces are ready for use, and will keep clean wrapped in a towel or put away in a jar.

Whenever dressings are used, suitably sized compresses, each having eight folds of cloth, can be cut out of the piece with a stout pair of sharp scissors.

Iodoformized gauze is made by sprinkling iodoform dust from a pepper-shaker uniformly over the moist compress, and rubbing it thoroughly into the meshes between the fingers.

An excellent substitute for gauze in an emergency is common cotton batting well soaked in a solution of corrosive sublimate (1 to 1000). The package of batting is unrolled in an ordinary manner, and cut into square pieces of desired size. Each of these is refolded into a small square and thoroughly kneaded in a wash-basin filled with the mercuric lotion till complete saturation is evident. Well wrung out, each piece is unfolded again to its original shape and is ready for use.

Any clean textile fabric of cotton or linen, soaked in mercuric lotion, will be a good antiseptic dressing.

CONDURANGO IN CANCER OF THE STOMACH.—Fifteen years ago there was introduced from Brazil a remedy which was claimed to be a specific for cancer. Since then, as before, other remedies have been similarly vaunted, and none have stood the test of experience. The remedy in question was condurango bark, of which a trial was made at the Middlesex Hospital, the negative results being read before the Clinical Society by Messrs. Hulke and De Morgan (*Clin. Soc. Trans.*, vol. v.). In Germany almost the only favorable report came from Professor Friedreich, who related instances of its value in gastric cancer. Since then it has fallen much into disrepute, having been regarded as little better than a stomachic, and prescribed thus with advantage (Wilhem, *Year-book of Treatment*, 1886, p. 49) in cases of carcinoma and ulcer. But Dr. Riess, of Berlin, has just published (*Berl. klin. Wochensch.*, March 7th) some striking testimony to the value of the drug in gastric carcinoma, more conclusive than any that has hitherto appeared. It is noteworthy that he doubts whether its qualities as a stomachic are better than those of other drugs of that class, and that he has not found it efficacious in cases of cancer where the stomach is not primarily involved. (Messrs. Hulke and De Morgan's reports did not deal with gastric cancer.) It was in cases presenting the symptoms of cancer of the stomach (many with a tumor) that the best effects were noticed. In 105 such cases—*i. e.*, where gastric cancer was diagnosticated—treated at the General Hospital from 1878 to 1886, condurango was prescribed, and in no case, even in those in the last stage, without some effect. The drug was often given every hour—the total amount per diem reaching ten grammes of the decoction—and continued for long periods without ill effect. The appetite improved in a few days, vomiting and pain diminished, and eventually ceased, and the patient gained in weight. Whether life is actually prolonged is, of course, difficult to prove; but Riess quotes statistics which show that the cases treated with condurango, both the fatal ones and those discharged in improved health, remained much longer in hospital than those not treated by the drug. He even states that of sixty-four cases in which a palpable tumor was present, in seventeen it diminished in size, and in eight quite disappeared; and he details three cases of such disappearance of obvious tumors, which, subsequently dying, presented only cicatricial structure, with no trace of malignant disease. Obviously, before we can accept such cases as examples of the *cure* of cancer we must be certain that the original diagnosis was correct, and the same scepticism may be allowed respecting the whole series of cases. For cancer of the stomach may not only be latent, but may be simulated by non-malignant ulceration, as every physician knows. Dr. Riess fairly discusses this point, being quite alive to the objection. He claims, at least, that condurango has some local effect upon a diseased stomach, and considers that in all suspected cases it should be prescribed. It need hardly be pointed out that local action as here claimed is a different thing from specific action in cancer generally, which was sufficiently disproved by the observations at the Middlesex Hospital.—*Lancet*, March 19, 1887.

CONTAGION OF EPIDEMIC PAROTITIS.—ROTH reports three interesting observations upon this point. The first was the case of a woman brought to the hospital with parotitis; eighteen days after her arrival a neighboring patient became ill with the same disease; on the same day a patient outside the hospital, whom the hospital physician had visited after making his rounds, was attacked by parotitis.

In the hospital the bed was carefully disinfected after the patient suffering from parotitis had vacated it. A diphtheritic patient who was placed in this bed developed parotitis eighteen days afterward. Roth considers, therefore, eighteen days to be the period of incubation. *Fortschritte der Medicin*, February 15, 1887.

TREATMENT OF VOMITING ASSOCIATED WITH UTERINE CATARRH.—AUDHOUI describes the following treatment in the *Revue de Thérapeutique* of March 1, 1887.

The patient is to take at evening, before retiring, one of the following pills; the dose may be increased to two or more if needed:

℞.—Ext. nucis vom. . . . gr. 15.
Ext. belladonnæ,
Ext. opii . . . . . āā gr. 3.
M. div. in pil. 20 in num.

Twice daily, at 11 A.M. and 7 P.M. the patient should take 30–40 drops of tincture of ferric tartrate (French Pharmacopœia), a preparation corresponding to the tartrate of iron and potassium of the U. S. Pharmacopœia.

The patient should also take, morning and evening, a vaginal injection of Parthenium (Feverfew) as follows:

℞.—Matricaria Parthenium . . ʒv.
Boiling water . . . . Oij.

An infusion should be made and to the liquid resulting a small quantity of cologne should be added; the temperature of the injection should be moderately high.

In addition, at least one full bath should be taken

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weekly, to which should be added an alkaline salt as follows:

℞.—Bicarbonate of soda . . ʒ8.
Volatile oil of lavender,
Volatile oil of mint . . āā ♏15.

Dual Conception.—Dr. Nowlin, of Nashville, Tennessee, reports in the *Southern Practitioner*, for March, 1887, the case of a negro who gave birth to twins, one a pure African, with all the typical features of that race, and the other a very bright mulatto, exhibiting evident characteristics of the Caucasian race.

The mother was a pure black, with all the typical features of the African, as was also the husband. It became an interesting inquiry to account for the difference in color of the two children. Upon inquiry he ascertained from the mother that she had permitted intercourse with a white man living with her master, the day succeeding the same act with her husband.

There were two separate and distinct placentæ and cords, and the midwife, having no knowledge that such a state of affairs could exist, had caused inversion by pulling at the second cord. The womb was readily reduced by the usual manipulations.

Myxœdema in Berlin.—A case of myxœdema was exhibited at the Berlin Medical Society by Professor Senator, on February 9th. He remarked that this was only the second case observed in Berlin, the other having been reported by Dr. Reiss at the end of last year. Together with two cases described by Professor Erb, of Heidelberg, this case made the fourth reported in Germany.—*Lancet*, March 5, 1887.

Wound of Fœtus in Utero by Stab Wound of the Mother.—The patient was a woman in the eighth month of pregnancy, who was stabbed in the gluteal region. About two and one-half litres of sanguinolent fluid escaped, and on the following day she was delivered of a dead child. Dr. Guelliot found on the left parietal bone of the infant an incised wound traversing the bone. The mother was necessarily exposed to serious risk of peritonitis and hemorrhage, but, curiously enough, she recovered without the slightest untoward symptoms. The wound in the buttock was situated ten centimetres from the great trochanter. He reproduced this wound on the cadaver, and found that, under similar circumstances, the peritoneum is not injured, but that the sciatic nerve and gluteal artery were liable to damage. The patient in question had some anæsthesia, indicative of injury to the sciatic nerve. The liquid which escaped was probably liquor amnii.—*Archives of Gynecology*, February, 1887.

Treatment of Habitual Constipation in Children.—Dr. Day, at a recent meeting of the Harveian Society of London (*British Medical Journal*, March 26, 1887) read an interesting paper on this subject. Most cases, he said, are due to: 1, a sluggish state of the muscular coat of the intestine; 2, to a diminution of secretion from the mucous membrane, or the liver; 3, to improper diet. Children are variously affected by constipation; the bilious and plethoric require a daily evacuation, whilst the neurotic, eating similar food, may have no evacuation for days together without inconvenience. Prolonged constipation is apt to lead to disease of the cæcum, chronic inflammation and thickening of the intestinal walls, dilatation of the tube, and occasionally perforation of the gut. Highly nutritious food, by not furnishing any residuum to be carried into the intestine, is conducive to constipation. As regards treatment, it is important that the child should make a voluntary effort every morning. Enemata are valuable when the colon is torpid and the rectum blocked. Mellin's food is advocated as a valuable preparation in the constipation of young children. Among drugs, strychnine and belladonna are useful in imparting tone to the bowels, relieving spasm, and lessening flatulence. Nitric acid was recommended in some cases of chronic constipation. An occasional mercurial purgative is useful in constipation from deficient secretion of bile, but, if repeated too frequently, it causes lassitude, pallor of the face, softness of muscle, and irritability of temper. Saline aperients are sometimes useful in children of full habit. Massage is a powerful remedy in chronic constipation, and, if conducted by a competent person, the process is pleasant and soothing to the child. Attention to diet is of primary importance.

Menthol-lanoline Ointment.—

℞.—Mentholi . . . . . grs. 15.
Ol. olivarum . . . . ♏ 8.
Lanolini . . . . . ad. ʒ2½.
M. f. unguentum.

Sig.—Lanoline ointment for migraine.—*Therapeutische Monatshefte*, March, 1887.

Rupture of the Bladder.—A patient was admitted into St. Bartholomew's Hospital on the morning of March 1st with symptoms of a ruptured bladder, in consequence of a blow on the hypogastrium whilst the bladder was distended. The injury had been received the previous evening, and Mr. Walsham operated soon after admission. A large quantity of urine escaped from the peritoneal cavity when the abdomen was opened, and a rent about an inch and a half long was found in the bladder wall. Sutures were used, passing through the peritoneal and muscular coats only; the abdominal cavity was irrigated with a one per cent. solution of boracic acid, and the abdominal wound closed as after ovariotomy. The patient suffered very little shock, and passed his urine naturally without the aid of a catheter every four hours. There has been no sign of peritonitis, and he may be looked upon as convalescent.—*Lancet*, March 19, 1887.

Gastrotomy in Italy.—The *Gazetta degli Ospitali* of February 23d gives the details of a gastrotomy performed by Professor Loreta, of Bologna, on account of severe pain suffered by a young woman who had swallowed a large quantity of needles with the intention of committing suicide. On searching the stomach carefully with the hand, few needles could be found. The cause of the pain and suffering was explained by further search and extension of the abdominal incision to the right over the liver. The points of several needles were found protruding above the surface of the margin of the left lobe of the liver, and these were deemed to be the

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source of the pain. Some were withdrawn, but others were so fragile that they broke off. The wound in the stomach and the abdominal parietes were accurately sutured, and the patient recovered without a bad symptom, entirely freed from her suffering.—*Lancet*, March 19, 1887.

OINTMENTS FROM THE FORMULARY OF THE NEW YORK HOSPITALS.—The following is prescribed by DR. W. F. MITTENDORF in recent burns and injuries of the eye; it should be applied every hour:

℞.—Cocaine hydrochloratis . . gr. 2.
Petrolati . . . . . gr. 40.—M.

Petrolatum is commonly known as petroleum ointment, paraffin jelly, or vaseline. Also,

℞.—Iodoformi . . . . . gr. 30.
Atropinæ sulphatis . . . gr. 1.
Petrolati . . . . . ʒ½.—M.

To be applied to the conjunctiva every evening in chronic phylctenular ulcers.

The following is the formula for Hebra's (or Wilkinson's) compound sulphur ointment:

℞.—Calcii carbonat. præcip. . . 2 parts.
Sulphuris sublimat. . . . 3 "
Olei cadoni . . . . . 3 "
Saponis viridis . . . . 6 "
Adipis . . . . . 6 "

Melt the lard at gentle heat. Then add the green soap and incorporate the other ingredients, stirring until the ointment is cold.

THE USE OF MENTHOL.—The following semi-fluid will be found useful when it is desirable to apply menthol to the mucous membranes—a camel's-hair brush is the most convenient agent for its application:

℞.—Mentholi . . . . . grs. 15.
Dissolve in ol. olivarum . . ♏ 45,
and add
Lanolini . . . . . ʒ1½.
M. f. unguent.

In burns, the following is an excellent application:

℞.—Mentholi . . . . . grs. 75.
Ol. olivarum . . . . ʒ11¼.
Aquæ calcariæ . . . . ʒ12½.
M. f. linimentum.

This preparation may be spread as a plaster, and as such may be most conveniently applied.

EXAMINATION OF THE HIP-JOINT THROUGH THE RECTUM.—Valuable information as to the condition of the acetabulum may be obtained by examination with the finger in the rectum. Three cases are reported by SCHMITZ in the *Centralblatt für Chirurgie*, in which this mode of examination proved useful. The patients were children from three to five years of age, in whom symptoms of coxalgia had existed for three, six, and twenty-one months respectively. In all three the thigh was slightly flexed, abducted, and rotated inward. In one case rectal palpation revealed a well-defined tumor in the acetabular region; in the others, abscesses varying in size from a hen's egg to a nut were detected. Movement of the femur during anæsthesia produced no friction. Resection was performed in all the cases, and the head of the femur, with its cartilage, was found to be quite healthy, but the acetabulum was extensively diseased. Schmitz recommends the use of this method of examination in all cases of suspected hip-disease.—*British Medical Journal*, March 19, 1886.

"BLACK DROPS" AND CARBOLIC ACID FOR PAINFUL EMESIS.—PECHOLIER has used the following prescription:

℞.—Acid. carbol. liquefact. . . . ʒ 2.
Aceti opii . . . . . ʒ 6.

Four drops in sweetened water three times daily, five or ten minutes before meals.—*Therapeutische Monatshefte*, March, 1887.

COCAINE IN ORAL SURGERY.—TELSCHOW is quoted as follows by the *Therapeutische Monatshefte* for March, 1887, in his observations with the use of cocaine:

The quantity used must depend upon the vigor of the patient; it will ordinarily vary from three-fifths to one and one-fifth grains; to the solution of cocaine Telschow adds a solution of carbolic acid 1 to 1000.

The injections should be made as nearly as possible to the nerve branches, as the effect is then more marked.

When possible, the injections should be made at the borders of the mucous membrane about the teeth; injections are also made in the distribution of the lingual, buccal, and labial nerves.

In about two minutes after the injections the mucous membrane may be separated from the teeth by a knife, and a 20 per cent. solution of cocaine may be pencilled between the teeth and the tissue separated.

In about three or five minutes the operation contemplated may be commenced; all pain may not be avoided, but no great suffering will ensue.

The unfavorable effects of cocaine were witnessed among nervous women and the aged only, and followed the use of large quantities; the best restoratives were five or six drops of amyl nitrite, and alcoholics.

THE USE OF CORROSIVE SUBLIMATE IN OBSTETRICS.—SZABÓ, of Budapesth, reports in the *Archiv für Gynäkologie*, vol. xxx., First Part, the following conclusions from his observations in the use of this antiseptic in the Budapesth Clinic:

1. For disinfecting the hands a sublimate solution, 1 to 1000, is recommended.

2. For disinfecting the genitals a solution of 1 to 2000.

3. For injections, vaginal and intrauterine, solutions of 1 to 4000 are used.

4. The vagina, and especially the uterine cavity, should be injected for the most positive indications only, either at the time of birth or during the puerperal period.

5. When such injections are given, not more than two quarts of sublimate solution should be used.

6. When injections are made to check hemorrhage, in a relaxed condition of the uterus, a solution, 1 to 8000, should be employed.

7. Sublimate should not be used when patients are anæmic, cachectic, or suffering from phthisis, affections of the kidneys, or of the digestive apparatus.

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ASEPTIC OPHTHALMIC SURGERY.

THE advent of antisepsis and its development into asepsis have not been revolutionary in ophthalmic surgery as in the surgery of other regions. As there was here the less need of such a reform in methods of surgical procedure, it has been less violent, less rapid, and, perhaps, less complete. The provisions of nature to guard the eyes—the lids, the tears with their increased flow after any injury of the organ, the outflow of aqueous humor when the globe is penetrated, the draining away of serum when the extensive lymph spaces of the orbit are opened—are all admirably adapted to prevent the infection of wounds, either accidental or operative. Then the small extent of the operative wounds, the accuracy and delicacy with which they must be made, and the need for absolutely keen, smooth edges to the knives and needles used, led to special care of instruments.

The accessibility of the eye to observation, and the importance of its function, fostered the most painstaking and accurate observation, and gave clinical experience a weight that enabled it to dominate practice. It has abundantly proved the value of cleanliness, and the dangers of introducing unnecessary instruments into the eyeball, or of operating on an eye in the presence of purulent disease of the conjunctiva or of the lachrymal passages. If sepsis was avoided, it mattered not what theories were held to give a *rationale* of the practice. So the methods of operative ophthalmic surgery of a generation ago, in many respects, conformed closely to the precepts of the wider aseptic surgery of to-day. A sense of this made the ophthalmic surgeon slow to adopt the antiseptic methods that seemed to constitute such a marked advance in many departments of surgery; but it must not keep him from carefully studying and profiting by the present practice of asepsis.

In the selecting of antiseptics for application to the eye, two things are to be borne in mind, viz., that the small surface for absorption prevents general poisoning by drugs like iodoform or mercuric chloride; and that the sensitiveness of the conjunctiva contraindicates the use of very irritant solutions. The latter condition has prevented the extension of any general favor to carbolic acid; though Gillet de Grandmont has recently advised, in the *Journal de Médecine* for January 23, 1887, the use of the carbolic spray during operations. He, however, does not direct it upon the eye, but uses it in the room for its effect on the instruments, the hands of the surgeon and the assistants, and, perhaps, though he does not mention it, on the minds of the patient's friends.

The most important use of the so-called antiseptics in ophthalmic surgery is that of solutions to cleanse the conjunctival sac, the lachrymal passages, and the lids and neighboring parts. For these purposes boric acid in saturated solution 1 to 25 has been used. It is entirely non-irritant, but a feeble antiseptic. Mercuric iodide 1 to 25,000 is also non-irritant, and a more reliable antiseptic. More powerful still is mercuric chloride in solution of 1 to 5000 or 1 to 2000. It is, however, slightly irritant, and, especially, in the stronger solution, should be used with care. Besides these solutions, iodoform may be applied in substance to the conjunctiva, always with the proviso that it be in the form of an impalpable powder, with no large, sharp crystals. For injection into the anterior chamber and lens capsule, for the washing out of adherent lens substance, in cataract extraction, after the method of McKeown and Wicherkiewitz; distilled water, and the boric acid and mercuric iodide solutions, have been used with equal freedom from irritation, and equal success.

To render them aseptic, such instruments as forceps, hooks, and specula, may be placed in a 3 per cent. solution of carbolic acid, although thoroughly efficient chemical disinfectants all seem to blunt the delicate cutting edges of knives and needles. The flame is out of the question, because it would spoil the temper of the metal; recourse must be had to boiling water or to mechanical means. If the surface of the metal be perfectly smooth, polished, and free from flaws and specks of rust, washing in pure water, and thorough rubbing with a clean towel, or piece of absorbent cotton, is all that is needed, culture experiments having indicated that polished metallic surfaces are thus rendered entirely aseptic. Of course, aseptic instruments must not touch hands, case-linings, or anything else which

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may carry infection. In the after-dressing of wounds, aseptic hands and materials, and the washing away of all discharges with one of the solutions above mentioned, are the essentials.

Special applications of antiseptics are seen in the use of corrosive sublimate, nitrate of silver, and sulphate of copper in purulent and granular conjunctivitis. Another treatment for panophthalmitis recently advised by Chibret in the *Archiv d' Ophthalmol.* for Nov.–Dec. 1886, consists in extracting the lens by a flap operation, and washing out the globe by injecting a solution of mercuric chloride 1 to 2000. This solution is injected at intervals for a couple of days, during which time great improvement occurs, and the healing is rapid and satisfactory.

The destruction of noxious germs is accomplished by the use of the actual cautery in the treatment of sloughing corneal ulcers; and it is not improbable that the treatment of purulent conjunctivitis by hot fomentations, which has grown into favor, is but a form of antisepsis by heat. Freyer states in the *Transactions of the American Ophthalmological Society*, 1886, that, to be effective, the temperature of the water must be 140° Fahrenheit, or upward; and this is so near the thermal death-line of pathogenic bacteria, as determined by Sternberg and others, that it seems very likely that the good results of the treatment are due, in part at least, to the direct effect of heat on the pyogenetic organism.

Although the old-fashioned surgeon may claim that the doctrines of antisepsis and asepsis only affirm the correctness of methods of practice whose value has already been well demonstrated by clinical experience, no light shed upon the reason of their correctness can be regarded as superfluous. So long as the proper precautions are preserved, whether ignorantly or knowingly, they prove effective. But in ignorance of their true import, they are sure, sometime, and in some essential particular, to be neglected, to the misfortune of the patient. And a careful revision and supervision of all operative procedures about the eye, in the light of the bacterial theory of suppuration, may subtract from the catalogue of bad results those cases, which occasionally occur, of an eye going or sent to destruction after an, often trivial, operation in a healthy patient.

ICE OR HOT WATER IN UTERINE HEMORRHAGE?

IN a case of post-partum hemorrhage, which occurred recently at the Philadelphia Hospital, the resident physician, after vainly using vinegar and then introducing a lump of ice into the uterus, stopped the flow by intrauterine injections of hot water. The patient got on well until the third day, when septicæmia was manifested, the disease happily yielding to intrauterine injections of corrosive sublimate, as indeed most cases of this disorder in the puerperium do when these injections are properly used. But the question naturally arises as to the origin of this isolated and single case of the disease. Considering the very remarkable results obtained by Prudden, stated in a recent number of THE MEDICAL NEWS, as to the enormous number of living bacteria found in the ice supplied to many of the citizens of New York, often from twenty to fifty thousand in a cubic centimetre, and with the probability that some of the Philadelphia ice is no better, it does not seem impossible that the disease was conveyed to the patient by the ice which was put into the uterus.

The choice between ice and hot water for the arrest of post-partum hemorrhage ought not to be doubtful, for most assuredly the latter is more certain in its action, and does not produce the depression that follows the application of cold. But if it is possible that septic infection may be conveyed by the introduction of ice into the uterus, we have a still stronger argument against its employment.

REMOVAL OF AN INTRACRANIAL TUMOR.

IN the current number of THE MEDICAL NEWS BIRDSALL and WEIR record a remarkable case of removal of a huge sarcoma, which originated in the meninges, and by its pressure destroyed the occipital lobe. The case not only reflects great credit upon the diagnostic skill of Seguin, Birdsall, and Spitzka, thereby constituting another triumph of the art of cerebral localization, but it contains several lessons of importance to the practical surgeon, of which the most striking is the proper means of arresting hemorrhage.

In this particular instance the bleeding was so profuse as to give rise to marked general symptoms. For its arrest, Weir, with the consent of his surgical colleagues, plugged the large cavity with strips of iodoform gauze. As the loss of blood continued, the outer dressings were removed in about five hours after the completion of the operation, and more gauze was crowded in, but death ensued four hours later, as stated by Weir, from the erroneous method resorted to for controlling the hemorrhage. Hence, in a similar case of bleeding from vessels too deeply seated for ligature, he would employ clamp forceps.

PUDDING OR PRAISE.

CARLYLE once stated that the great majority of human beings lived either for pudding or for praise. Since physicians compose so large and important a class of the race, they, too, work either for the substantial things of this world, or for commendation, for pudding or for praise. As this is the period of the year when several hundred are added to the great army of doctors, possibly a word or two upon these topics may be useful, as they are timely, to the new recruits.

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First of pudding. Medicine belongs to what have been called the bread and butter sciences; it is practised as a means of obtaining a livelihood, and while philanthropic motives ought ever to govern the physician's life, yet few would pursue it solely out of love for his fellow-man. The doctor is a workman, and ought to be worthy of his hire; that is, he ought to receive a just compensation for his services, and at the same time this compensation should not be so great as to do injury to the one paying it. We knew an eminent surgeon in one of our western cities, whose inquiry of patients coming from the country, was, "What is the size of your farm?" and the bill for his services corresponded. It is always better before doing an operation, to have a definite understanding as to the fee, remembering that we should never take advantage of the sufferings of fellow beings to extort from them in their distress an amount which will put them to serious inconvenience; some of them have to borrow the money to pay the bill, and possibly this may be so great that they painfully struggle all the rest of their days under the load of debt.

But it is not by operations that most doctors chiefly earn their living, but by visits and office consultations. It is important that the physician should keep careful and complete accounts of these multiplied services, and collect his bills at least twice a year; "many a mickle makes a muckle," and constant and assiduous attention to collecting the little amounts due for professional services may, after many years, make all the difference between pinching poverty and pecuniary comfort in old age. We have known so many physicians whose lives of labor did not bring them an old age of ease, and who died leaving their families in destitution, that we are urgent in pressing the importance of this attention to the pecuniary returns of business.

The young physician, eager for patients, may be tempted to take some upon the no cure no pay basis, but he will generally come to grief by pursuing this plan; the sort of patients that are thus caught are generally fickle in their attachments, and have no proper conception of the medical character and office. There are some who are incurable, no matter what therapeutic means are used; yet efforts to cure deserve a reward. One of our own guild, Sir Thomas Browne, has said: "There are not only diseases incurable in physick, but cases indissolvable in law, vices incorrigible in divinity." He further states in regard to charging the uncured patient: "Where I do him no good, methinks it is scarce honest gain, though I confess 'tis but the worthy salary of our well-intended endeavors." The last clause furnishes the ethical rule which should govern the physician in collecting his bill, even though his services have been in vain.

It is not unusual for physicians in villages and smaller towns to make their daily purchases from their clients and thus keep running accounts which are only settled at long intervals. Now this way often leads to misunderstandings, to disputes, and to final alienation between those who have been friends. It is better for the physician to pay cash for all that he buys.

However crowded the profession is, the young doctor may be assured that, with a fair amount of attainments, with common sense and wise conduct, he is sure to meet with success ultimately. He may have to wait, especially in cities and towns, for some years before income and outlay shall be equal, still longer before the former exceeds the latter; but if he spends those years in working, in attaining larger knowledge and greater fitness for professional duty, instead of indulging in frivolous amusements or gloomy forebodings, that success will be more certain and greater.

Very exaggerated notions are sometimes held, even by physicians, as to the income derived from medical practice, and we sometimes see not only in lay, but also in medical, journals, extravagant statements as to the annual amounts received by practitioners. *Dat Galenus opes* is only exceptionally true; for one hundred medical men whose income is counted by thousands, there are thousands whose income is within the hundreds. The fact is that for the majority of physicians a fair support is all their professional work yields them; they and their families nearly or quite consume all the pudding that society gives them.

Having devoted so much space to one aspect of the subject, we leave the other to a future occasion.

TREATMENT OF THE MORPHIA HABIT.

In *L'Encephale*, No. 2, 1887, Jennings gives his experience with a new plan of treatment of morphiomania. The amount of the narcotic is gradually reduced, and in the period of inquietude and distress various forms of dynamic stimulation are employed, such as faradization, massage, dry friction, mechanical vibration by Granville's percuteur; sounds, as music; and heat, by warm bath. By these means the insupportable craving is allayed, and the dose can be progressively diminished. The only medicines employed are bicarbonate of sodium, preparations of valerian and nitro-glycerine, which produce a glow and pleasant sensation, not unlike that of morphia. The essential features of this method have been employed with success by Weir Mitchell, who has found seclusion, careful nursing, massage, and electricity most valuable adjuncts in the treatment of this distressing and obstinate condition.

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A MONUMENT TO RUSH.

THE American Medical Association have undertaken a most commendable work in endeavoring to raise a fund for the erection of a monument to Rush, at Washington. It is by no means creditable to this city, for which he did so much, the reputation of which as a medical centre he may be said to have laid, and in the service of which he died, that no public memorial attests the gratitude of his fellow-citizens. The appeal is now made to the profession of the entire country to subscribe a sum of $40,000, the amount which it is estimated that a suitable statue will cost. The subscription rate has been fixed at one dollar, though voluntary donations of other sums will be received. Dr. John H. Musser, of Philadelphia, is the member of the committee for Pennsylvania, and entitled to receive subscriptions.

THE SATURDAY AND SUNDAY HOSPITAL FUND of New York City is a vital and growing charity. The amount of its collections this year, thus far reported, about $53,000, is 15 per cent. above the sum contributed in the year previous, when the total was $46,023.43. This betokens a growing popularity from year to year, and is in striking contrast with the situation of the like fund in London, in which there has been a falling off this year of $2500 from the sum of a year ago, when about $28,000 was the amount received.

MESSRS. PARKE, DAVIS & Co., have just issued an excellent lithographic portrait of Dr. Robert Koch, the eminent bacteriologist, and they kindly offer to mail a copy to any physician applying to them for it.

WE are informed that Dr. Wm. T. Lusk, of New York, successfully performed Cæsarean section at Bellevue Hospital, March 23d.

REVIEWS.

MANUAL OF OPERATIVE SURGERY. By JOSEPH D. BRYANT, M.D., Professor of Anatomy and Clinical Surgery and Associate Professor of Orthopedic Surgery in Bellevue Hospital Medical College, Visiting Surgeon to Bellevue Hospital, etc. 8vo. pp. 530; with about eight hundred illustrations. New York: D. Appleton & Co., 1887.

DR. BRYANT has succeeded in producing a very creditable work upon operative surgery, and one which can be consulted with pleasure and profit. It is less comprehensive than Smith's work, there being no chapters devoted to the diseases peculiar to women, those of the eye or ear, or fractures and dislocations, but the various operative procedures of general surgery are carefully described, and the indications for and against operations discussed in a judicious yet progressive manner. Amongst the methods of anæsthetization mentioned we note that by "intestinal etherization," which was prominently again brought to notice a few years ago; but as it is dangerous, a number of fatal cases having occurred, and possesses few or no advantages over the usual method of administering ether, the mention of the method is of more interest historically than practically.

The usual typical operations are carefully described, and the surgical anatomy involved is accurately explained and illustrated. Various innovations and new methods which have been introduced during the past few years have appropriate notice and discussion in the text, such as cerebral localization, operations upon the nerves, nerve suturing and nerve transplantation, suturing of tendons, transplantation of bone, etc. We note, in passing, that the author regards the old circular amputation as the method best adapted to the majority of cases.

It is needless to specify particularly any special portion of the work; all parts are excellent, fully up to date, judicious in regard to methods which are still on trial, with good anatomical cuts and explanations, and a lucid style.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 7, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

THE PROPER SELECTION OF ETHER OR CHLOROFORM AS AN ANÆSTHETIC.

THE PRESIDENT stated that Dr. Arpad G. Gerster was to have read a paper on this topic, but as he was temporarily detained, he would make a few remarks introductory of the subject. He said that he understood that the reason why Dr. Gerster had written his paper was because in several cases of death under chloroform occurring in this city, the attending surgeons only with difficulty escaped legal penalties, the ground being taken, by the authorities investigating the cause of death, that it is unjustifiable to administer chloroform for anæsthetic purposes. On the other hand, several deaths of patients under ether had been reported in our own hospitals. Dr. Gerster, therefore, thought it desirable that the Academy should give expression to its opinion whether it is always, and under all circumstances, advisable to give chloroform, or whether in certain conditions it is not preferable to ether, or, again, it is a matter of indifference which agent is employed.

DR. JACOBI then read a letter from Dr. Hermann Knapp, who was unable to be present, in which he briefly related his personal experience with the two anæsthetics. From 1860 to 1874 he used chloroform in some three thousand cases. While he had had no fatal results, in many instances the effects were very unpleasant, and he had met with a considerable number of critical cases. During this period about once a month he was obliged to resort to artificial respiration and other measures for the resuscitation of his patients. Since the year 1874 he had used ether exclusively, and

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since then he had found no ground for complaint, and no contraindication for the administration of this agent.

It is his practice to employ what is known as the "choking plan" in giving it; though at the beginning of the anæsthetization the patient is allowed to have enough air to prevent the sensation of strangulation often complained of by those taking ether.

He had found that many operations performed by the ophthalmic surgeon could be completed during preliminary anæsthesia—that is, before profound narcosis is induced. In several hundred of his cases the average duration of the maintenance of the anæsthesia was one minute and thirty-seven seconds. He had met with no fatal cases, and only a very few in which there was any trouble whatever on account of the anæsthetic. The secondary effects, moreover, he had not found any more unpleasant than those of chloroform. On the whole, therefore, he regarded ether as an invaluable anæsthetic, and he looked upon it with especial favor, from the fact that now that he habitually employed it his mind was quite free from that anxiety as to the effect of the anæsthetic which, in the case of chloroform, he could never overcome.

DR. GERSTER said that in approaching this subject it is necessary to cast away all prejudice and consider it in a spirit of candid inquiry. In the first place it is to be borne in mind that both ether and chloroform are dangerous anæsthetics. Researches with the aid of the sphygmograph, demonstrating the effect upon the pulse, have shown, however, that chloroform is infinitely the more powerful agent of the two. Still, this fact does not afford ground for the universal condemnation of chloroform, though it renders greater caution necessary during any operation in which it is used. As soon as the patient recovers consciousness, however, all danger from the anæsthetic is past. This is not the case with ether, because the latter is liable to give rise to nephritis and catarrhal bronchitis. To sum the matter up, then, while chloroform is the more powerful agent, and consequently attended with more danger at the time of the operation, its use is not followed by the secondary affections of the lungs and kidneys which are apt to result from that of ether.

The statement frequently made by partisan zealots, that ether is always and under all circumstances safe, is not true. In hospital practice it is found that in a considerable number of patients, particularly those addicted to the use of alcohol, it is exceedingly difficult to produce profound anæsthesia with this agent, and in such cases, from the effect of the excessive and irritating mucous secretions excited, catarrhal or septic pneumonia is very apt to ensue. Admitting that, on the whole, ether is safer than chloroform, Dr. Gerster proceeded to speak of the manner of administration, and recommended as superior to any other that by means of Ormsby's inhaler. He then went on to say that ether is contraindicated in all affections impairing the renal functions, a circumstance, the credit for first pointing out which belonged to Dr. Emmet. In this connection he related a case in which herniotomy was performed. The operation lasted twenty-five minutes, and the patient recovered perfectly from anæsthesia. Albumen and hyaline casts were noticed in his urine, however, and in a short time he died from uræmia. Other similar cases had been noted by Drs. Emmet, Wesley M. Carpenter, Van Santvoord, Hunt, and Morris. An examination of the urine, he thought, should be made in every case before administering an anæsthetic, except where the urgency of the circumstances precluded this, and if Bright's disease is found to be present chloroform will be the safer agent to employ.

Ether is also contraindicated when in the aged or in young children, or generally in the feeble, there are catarrhal conditions of the air passages. He related the following cases in illustration:

Case I.—Mary B., aged forty-three. On the 20th of August last she was admitted to Mt. Sinai Hospital suffering from cancerous stricture of the rectum and chronic bronchitis. On August 23 lumbar colectomy was performed under ether. On the 23d she had a severe chill, followed by a temperature of 105°, and on the 24th pneumonia of the entire right lung was found to be present, and death ensued.

Case II.—Moses H., admitted to Mt. Sinai Hospital in January, 1887, with tubercular disease of the testes. On the 23d of the month castration was performed under ether. On the 24th the temperature went up to 106°, pneumonia of the right lung developed, and the patient died. In this case, as in the preceding, the wound made at the operation was found at the autopsy to be in a healthy condition.

Case III.—Stephen W., aged sixty-one years, admitted to Mt. Sinai Hospital in November, 1886, suffering from cancer of the rectum. Inguinal colotomy was performed under ether, and pneumonia of the left lung afterward developed.

In the year 1886 three cases of pneumonia occurred in the Mt. Sinai Hospital after the administration of ether; in two of which the patients died, while in the third recovery took place. There were also five cases of severe bronchitis arising under similar circumstances, reported during the year. Dr. Gerster said he had four more cases in his notes, but as in these operations were performed either upon the trachea, larynx, or lower jaw, it was possible that the entrance of blood into the air-passages might perhaps have caused the pulmonary disease; and he would not, therefore, insist upon them. As narcosis by ether is dangerous in young children suffering from affections of the air-passages, chloroform is always to be preferred under these circumstances, although in healthy young children ether is borne well.

The third class of patients in which chloroform is to be preferred is those who cannot be satisfactorily brought under the influence of ether. In the incomplete anæsthesia thus caused there is an amount of muscular rigidity remaining which constitutes an insuperable difficulty in quite a large class of cases. Not only loss of sensation, but total relaxation of all the voluntary muscles is indispensable in many operations. In spite of proper preliminary precautions, and the greatest amount of care in the administration of the anæsthetic, in 11 cases out of 125 at the Mt. Sinai Hospital, it was found impossible to produce with ether the complete anæsthesia required. In all these instances, however, a change to chloroform was followed by the happiest results. Five cases were related in illustration. To recapitulate, then, he said ether should not be used as an anæsthetic in any case—

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(1) Where acute or chronic nephritis is present or is suspected to exist.

(2) Where there is any chronic pulmonary affection, especially in the old or feeble.

(3) Where ether will not produce the complete anæsthesia and relaxation indispensable for the successful performance of the operation in question. In such cases, if local anæsthesia cannot be secured by cocaine or the ether spray, chloroform should be resorted to.

Dr. Gerster then went on to say that while, in general, the administration of chloroform undoubtedly required greater caution than that of ether, there was only one contraindication against chloroform, viz., the presence of a fatty or weak heart. In the hands of a careless giver of anæsthetics, chloroform is, no doubt, more dangerous than ether. In those addicted to the habitual use of alcohol, normal anæsthesia with ether is generally impossible, as such patients usually drift from a state of violent excitement into alarming narcosis. Sometimes the same result is noticed, however, in the perfectly temperate, and a case in point was given. Bright's disease offers no contraindication to chloroform, and he said that in a number of cases in his own experience, two of which he related, he had used it with no bad results whatever in those suffering from pure kidney affections. In eight years' hospital experience he had met with only two cases in which pneumonia followed the administration of chloroform, and in both these the probable cause of the pulmonary trouble was the entrance of blood into the bronchi.

The existence of valvular disease of the heart, again, is not a contraindication to chloroform if there is satisfactory compensation by muscular hypertrophy, as indicated by the good quality and regularity of the pulse. In such cases, especially when there is a kidney complication, ether should not be used. On the other hand, if the heart is feeble from any cause, chloroform should never be used. In such cases ether is also dangerous, but to a less degree. In anæmia ether is, as a rule, safer.

Dr. Gerster next spoke of the special danger of chloroform in cases of marked nervous depression, and said it should never be used when the patient is in a state of fright. It is a fact that most of the deaths from its use are in cases of slight operations, and he thought this was explained by the dread of the operation or the anæsthetic. In severe operations the patient generally nerves himself for the ordeal, and hence there is less danger from this source. There are many cases of pallor and weak pulse, however, in which the condition is markedly improved by the anæsthetic, whether chloroform or ether.

On February 10, 1886, Thomas R., aged thirty-two years, consulted him at his office for a tumor of the maxilla. When an exploratory excision was proposed he became so much alarmed that he asked for chloroform, which was not given at this time. Five days later he was admitted to the hospital as a private patient, and on the 17th Dr. Gerster proceeded to operate on the tumor, which proved to be a glandular abscess. He subsequently learned that the patient expressed the conviction that he would never leave the operating-room alive. When two drachms of chloroform had been administered by means of Esmarch's mask, opisthotonos suddenly occurred, the pupils became dilated, and the abdominal muscles were found to be rigid. The pulse ceased and within a minute the man was dead. The most active efforts at resuscitation were carried on for forty-five minutes, but without avail. The heart was previously carefully examined; the pulse was found to be good up to the time of the operation, and the kidneys were normal. The experience gained in this case, Dr. Gerster said, led him to administer stimulants and a small dose of morphia prior to operating in all cases where the patient was not in a perfectly good condition, and he would now never give chloroform to any one who was the subject of deadly fear. In every instance in which it is feasible a careful physical examination should be made, and the probable prognosis duly announced to the patient or his friends before proceeding to employ this anæsthetic.

DR. R. F. WEIR said that there seemed to be a growing feeling in the minds of the profession that ether is not as safe an anæsthetic as we have for many years been supposing. The points presented by Dr. Gerster were certainly worthy of consideration; but he thought he had stated the case too strongly against ether. While in some instances kidney trouble might be aggravated by the administration of ether, he had seen too many cases of this kind in which it had been given with safety, since Emmet and Hunt, of Philadelphia, had so prominently called attention to the matter, to make him willing to acknowledge that the presence of nephritis was always a contraindication to the use of ether. He did think, however, that in such cases it should be given with special caution. Dr. Gerster was perfectly correct in his statement that there are a certain proportion of cases in which it is practically impossible to produce perfect anæsthesia with ether.

As to the production of pneumonia, while it is possible that it may sometimes be due to the local effect of the cold ether vapor, he is inclined to think that in many instances it is directly attributable to certain measures which have come into vogue since the introduction of antiseptics. The spray had formerly been instrumental in giving patients cold, and since this had been to a great extent abandoned, the practice of laying cloths wet with antiseptic solutions upon the surface of the body was, probably, sometimes the cause of pneumonia. This incautious exposure of the patient is to be avoided, and he thought general surgeons should take a lesson in this respect from gynecologists, who, it is noticeable, are always very careful to protect the patient from all such influences. Some time since, he had called the attention of the house staff of the New York Hospital to the matter, directing warm and dry towels to be placed next the body, except just at the seat of operation, and since this precaution has been taken, he has met with less trouble of the kind in question.

Personally, he did not think the bad consequences arising from the use of ether are as frequent as had been represented in the paper; but, after all, Dr. Gerster had admitted very frankly that chloroform is much more dangerous than ether at the time of administration. The question then arises—Is the danger which follows the use of ether greater or less than that which attends that of chloroform during an operation? Dr. Weir answered this by saying that, as for himself, he would prefer to take ether rather than chloroform, if an anæsthetic was required, even if he were the subject of kidney trouble.

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The deaths from chloroform from 1873 to 1879, collected by a single journal, the London *Lancet*, amounted to 92; while those from ether, from 1873 to 1880, as collected by Dr. Roberts, of Philadelphia, amounted to only 18. This showing, he thought, corroborated the position which he desired to take before the Academy in the present discussion.

He believed it would be of interest to present the statistics of such a venerable and well-known institution as the New York Hospital, and he had, therefore, taken the trouble to look up the records. In this hospital ether and chloroform had been used since 1847. Shortly after this date, however, a number of mishaps occurred in connection with chloroform, and since 1850 ether alone has been employed. From 1847 to 1870, when the old buildings on Broadway were given up, some 7700 operations were performed under ether, and in only 3 of these did death result from the anæsthetic. One of the fatal cases has been published by the late Dr. Allen, but the other two had never been placed on public record. Dr. Allen's case was one of operation upon the lower jaw, and the other two were both of hernia. One of them occurred while Dr. Weir was house-surgeon (1859–60), and the patient had a double scrotal hernia. No cause for death could be found at the autopsy, and it seemed probable that this was attributable to pressure upon the diaphragm, or, possibly, the heart itself, from the forcing of such a large mass of intestines into the abdominal cavity. The other case referred to, occurred in the practice of Dr. Markoe, and was one of strangulated hernia in a fat, old man, who was in a very low condition at the time.

From 1876, when the new hospital buildings were opened, to 1886, 2287 operations were performed under ether, with one death from the anæsthetic. The case was believed to be one of rupture of the bladder, and when the autopsy was made, a portion of undigested food was found to have lodged in the larynx. In the House of Relief, from 1876 to 1886, 802 operations were performed under ether, with one death from the anæsthetic. At the autopsy in this case there were found atheroma of the aorta and a tuberculous condition of the lungs. It would thus be seen that at the New York Hospital there had been only 5 cases of death from ether in nearly 11,000 operations.

Though he appreciated the fact, as he had already intimated, that there were a great many cases in which the patients "take ether badly," as it is generally expressed, he could not remember a single case in which the operation had to be postponed on this account. By summoning aid to assist in holding the patient, he had always been able to get along without resorting to chloroform. Until an anæsthetic free from all objections was discovered, he thought, therefore, we could go on with the use of sulphuric ether with a fair amount of satisfaction.

DR. LEWIS A. SAYRE stated that he was well aware that the views which he entertained on this subject were entirely different from those held by the great majority of the profession in this country; but, in spite of opposition, he had for many years continued to hold them with ever-increasing confidence. He preferred chloroform because it is agreeable to take, speedy in action, excites no spasmodic rigidity, and is not followed by the sad effects which are sometimes noticed in the case of ether. It is the usual practice to allow the patient to have plenty of fresh air with the chloroform, thus permitting its antidote to act against the anæsthetic. In consequence, a much larger quantity of chloroform is taken into the system than is required if the proper manner of administering it were employed. The method of pouring an unmeasured quantity of an anæsthetic into a cone or inhaler, and then every few minutes adding one or two ounces more, he thought entirely wrong. We do not, he said, use arsenic, strychnia, morphia, or other potent agents, in this way. Chloroform and ether are both powerful drugs, and he thought, therefore, that they should be used with the same caution as any other potent agent.

Dr. Sayre then exhibited the inhaler, a modification of Lente's which he had used exclusively for many years. By means of a rubber attachment devised by his son, the late Dr. Charles H. Sayre, it can be made to fit accurately to any face, and it is thus possible to exclude all air from the patient except that permeated with the anæsthetic. Ten, twenty, or thirty drops of chloroform, poured in upon the sponge with which the cup is provided will almost invariably produce anæsthesia, and if from any cause the heart should show signs of weakness or cease to act, a few expirations caused by artificial respiration will be sufficient to get rid of the entire amount of chloroform, and thus save the patient. As he had stated, he had practised this method for many years, and in proof of this he read an extract from the Proceedings of the International Medical Congress in 1876 (page 574), giving a report of his remarks on this subject in connection with a case of exsection of the hip, which he performed at the Pennsylvania Hospital in the presence of a number of distinguished foreign and American surgeons. When chloroform is freely mixed with air, anæsthesia is not produced for a long time, and great injury is liable to result from the violent muscular exertion made by the patient, especially when there is disease of the joints present. In addition, if in any case in which chloroform is given in this way trouble should arise from the anæsthetic, a fatal result will probably ensue on account of the larger quantity of the drug which it had been necessary to administer before anæsthesia was produced.

DR. W. GILL WYLIE said that until very recently he had never had a death from anæsthetics in his practice occurring during or near an operation; but within the last two months he had lost two patients, both of whose deaths he attributed to ether. In general, he approved of the opinions expressed by Dr. Gerster in the paper; although he thought that he was somewhat too strongly in favor of chloroform. On the whole, he would therefore say, he preferred ether, as a rule; but there are many cases in which it is advisable to use chloroform. There could be no doubt that ether was often used too carelessly, in New York, as well as in other places, and this is probably due to the prevalent impression that there is little danger to be apprehended from this agent. Some years ago, when a new interne in Bellevue Hospital was administering ether to a patient, he saw the latter suddenly cease to breathe. The man was apparently dead, and it was only with great difficulty that he was resuscitated. When spoken to in reference to the accident, the interne remarked, that he "didn't know that a person could be killed with ether."

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Like most other members of the profession in New York, he had used ether almost exclusively in surgical cases, though he had always employed chloroform in his obstetrical practice; and until two months ago had never met with any trouble from ether. At that time he operated on a patient with a large abdominal tumor, using ether as an anæsthetic. The urine had been previously examined, and found to contain no albumen. Not long after the operation the pulse went up to 140°, afterward it never fell much below this; the patient dying of Bright's disease. At the autopsy it was found that nothing whatever was wrong with the abdominal wound. It was a case of chronic interstitial nephritis, in which acute nephritis was suddenly developed after the operation. The liver and heart were also found to be somewhat diseased. In this instance he thought that the administration of chloroform would not have been followed by the disastrous results which were met with after the use of ether.

There was another point which he thought was of some value. He had found that patients who have taken ether more than once are apt to acquire a certain tolerance of the drug, so that it is often very difficult to get them under its influence. He had an opportunity of noticing this a number of times at the Woman's Hospital, when patients with affections like vesico-vaginal fistula had to undergo several successive operations.

The other fatal case to which he had alluded was one in which he was called upon very suddenly to operate in a case of strangulated umbilical hernia. The patient, a female, appeared to be in good condition. It was true that she had been vomiting for quite a long time, but the vomit was not stercoraceous in character. She was very stout, and as she reminded him quite strongly of the other patient who died, he at first refused to give ether, and advised chloroform. As the attending pnysician objected to this, however, he finally consented to use ether, and accordingly this anæsthetic was very carefully administered. Presently, however, the patient became cyanotic, and nearly died on the table. She was temporarily revived, but died about an hour afterward, apparently from suffocation. In another case of this kind he said he would employ cocaine as the anæsthetic, as he had come to the conclusion that in very fat women ether is dangerous. The lung capacity is so small that any extra strain upon the lungs will be apt to prove fatal. In such cases the presence of a very little fluid in the trachea may be attended with grave consequences. In conclusion, he said that he had to confess that three or four years ago he was more or less prejudiced in favor of ether in almost all cases. He had now, however, modified his views somewhat. In general, he preferred ether, but if there were any trouble about the lungs or kidneys he would use chloroform. As a rule, he would use ether in surgery, and chloroform in obstetrics.

DR. WEIR remarked that it had been shown that operations for hernia, and upon the peritoneum in general, had of themselves a direct effect upon the kidneys, independent of the anæsthetic used for the operation.

DR. JOHN H. WYETH said that he had formulated his views as to the cases in which the use of chloroform is justified as follows:

1. In children under six years of age, where it is less apt to cause an accumulation of mucus in the trachea and bronchi than ether. Its more rapid and less irritating action renders it preferable in this class of cases.

2. In women in childbirth, where the recumbent position is imperative.

3. In an emergency where ether cannot be obtained.

4. In a patient who has previously been in ether narcosis, in whom dangerous symptoms were caused by the ether.

5. In an emergency where it becomes necessary to perform an operation within two or three hours after the ingestion of solid food.

6. In some exceptional cases of laryngeal or tracheal stenosis.

In regard to the existence of nephritis, he would not consider this a positive contraindication. When this is present, however, he would always proceed with unusual caution, and if any trouble should arise he would change to chloroform. He entirely agreed, in the main, with what Drs. Knapp and Weir had said. In his own practice, he said, he had used ether exclusively, except in the classes of cases mentioned, and although his experience had been quite extensive, he had not met with a single case of trouble from it. He had never seen such cases as those referred to by Dr. Gerster. Some of the operations mentioned by him in which ether was followed by such disastrous results were very long and tedious, lasting from three to six hours, and in individuals suffering from cancer; so that the fatal termination was not a matter of surprise. In his work on surgery, Professor Agnew has collected statistics of 195 deaths from chloroform and only 6 from ether, from 1859 to 1872: a proportion of 65 to 1. Moreover, in three of the deaths attributed to ether, a mixture of ether and chloroform was employed. As to the good results which Dr. Sayre had met with from chloroform, he believed that his experience with it had been to a large extent confined to young children and parturient women.

DR. ROBERT ABBE said that he had seen but one death from ether. It was a case of tetanus in which the late Dr. Little was performing amputation of the leg, and the patient died, apparently from spasm of the heart, before the operation was completed. It seemed to him that ether is preferable to chloroform from the fact that the two principal dangers which have been urged as objections against ether, viz., the possible occurrence of acute pneumonia and acute nephritis, are to a large extent under the control of the physician, while the dangers incident to chloroform are entirely beyond control. When asphyxia occurs during ether narcosis, the use of artificial respiration and other appropriate measures is usually successful in restoring the patient; and if acute nephritis occurs after the employment of this anæsthetic, it is, in his opinion, amenable to treatment by means of such agents as sinapisms, digitalis, acetate of potassium, and possibly opium. He had never seen a case of this kind in which death resulted. With regard to acute bronchitis and pneumonia, he believed that many of the cases following operations are due, not to the ether which has been employed, but to the exposure of the patient in being carried from the operating-room and in draughty wards. If such troubles are caused by ether, he believed that we should meet with laryngitis much more frequently than is actually

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the case. During the three years in which he had been in St. Luke's Hospital, seeing medical and surgical cases alike, he had found that acute pneumonia arising in the hospital was more frequent in the medical than in the surgical wards. These considerations, he said, gave him great confidence in the use of ether, although he quite agreed with some of the other speakers that when chronic nephritis is present it should be administered with great caution.

DR. PAUL F. MUNDÉ said that in his earlier professional career, spent abroad, he had been accustomed to use chloroform, and that since he had been practising in New York he had used ether almost entirely in surgical cases. He had seen no deaths or subsequent bad effects from the latter, either in his own practice or that of others. On three occasions, however, twice in children and once in an adult, he had met with cases in which death would have resulted from the primary effects of the ether if artificial respiration and other active measures had not been resorted to. While he had been trained to use chloroform exclusively, he would confess that he felt ether to be safer if it was properly administered. The giving of the anæsthetic was, in his opinion, often a more important point than the operation itself. He, therefore, thought it was entirely wrong to entrust so serious a matter to young hospital internes of little or no experience, since to administer an anæsthetic properly required as much experience as to assist intelligently in the actual performance of an operation.

The method for giving ether which he prefers is by means of Clover's inhaler, in which the amount of air admitted can be carefully regulated. He had seen some cases which could not be well anæsthetized with ether, and therefore when he noticed that the mucous membrane was particularly sensitive, he generally substituted chloroform for it for a time, and then afterward went on with the ether again. He almost always gave bromide, and sometimes a hypodermatic injection of morphia, preparatory to administering the anæsthetic. He was inclined to think, however, that morphia might possibly sometimes increase the danger. For short operations, and also in the case of children, as well as in obstetrical practice, he preferred chloroform to ether.

DR. R. W. AMIDON said that while, as Dr. Gerster had stated, the only real contraindication against chloroform was a weak heart, it was at the same time true that deaths occur more unexpectedly—often, indeed, entirely without any warning whatever—than when ether is used. As Dr. Reeve said in a note in Holmes's *System of Surgery*, "There is a danger attending the use of chloroform which no foresight can discern, no precaution avoid, and no skill avert."

As to the collection of mucus in the air-passages which Dr. Gerster had referred to as liable to cause such unpleasant and dangerous results, this could readily be avoided by the preliminary hypodermatic injection of atropia, as he had pointed out in a paper which he read by invitation two years ago before the New York Surgical Society. When, therefore, any respiratory impediment is anticipated from the effects of the ether, from one-fiftieth to one-thirtieth of a grain of atropia should be administered. By this agent the bronchial and tracheal secretions are diminished, and it also tends to increase the activity of the respiratory centres, and strengthen the heart. Dr. Thallon, of Brooklyn, and Dr. Weir had employed atropia to a considerable extent in this connection, and quite recently a case had been reported in THE MEDICAL NEWS of January 22, 1887, in which impending death was averted by the administration of digitalis and belladonna.

DR. THALLON thought that Dr. Gerster was too strongly in favor of chloroform. He agreed with Drs. Weir and Wyeth that the presence of nephritis should not be considered a positive contraindication against the use of ether, although it should make us cautious in giving it. He related a case which had nearly died from the effects of ether in the hands of Dr. Emmet, and afterward came under his own care. After an examination of the urine and the heart he determined to give ether for an operation that had to be performed, and the patient took it without experiencing any trouble, either at the time or subsequently. Still later, she took chloroform, and this likewise was unattended with any difficulty. He thought, as Dr. Sayre had suggested, that the administration of anæsthetics is largely a question of dosage.

The apparatus which he had adopted he regarded as far superior to Clover's or almost any other, and it was simply the inhaler ordinarily used by dentists for nitrous oxide gas. As in the case of the one exhibited by Dr. Sayre, at each inspiration the anæsthetic was inhaled, while the expiration got rid of the foul air. By means of this apparatus he had been able to keep a patient anæsthetized for hours, and yet had not used more than a quarter of a pound of ether altogether. With it he had never had any kicking or struggling on the part of the patient, or failed to secure complete anæsthesia. There is much ignorance in the profession as to the proper administration of anæsthetics, and he thought that the ordinary way of giving ether is little less than brutal. The point suggested by Dr. Amidon he thought one of much value. He had first seen the idea proposed in the *Lancet*, in 1880, if he remembered rightly. It is well known that atropia is one of the best stimulants to the respiratory centres, and it is, therefore, a valuable prophylactic in this connection.

DR. GERSTER, in closing the discussion, said that he regretted that he had been charged with partiality, when he had endeavored to present an entirely unbiassed opinion, and that his position had been misunderstood. He had not defended chloroform; but he did mean to say that it is unscientific to claim that either ether or chloroform is, so to speak, our "only salvation." The proper choice of the anæsthetic in each case should be left to the intelligence and experience of the surgeon. Whatever might be the case with others, he himself had certainly met with a certain proportion of instances in which he could not properly anæsthetize the patient with ether. He had not hesitated to say, however, that he considered ether safer than chloroform, and that it should be preferred to the latter as a rule. Still, he did not think that the statistics which had been quoted were at all reliable, from the fact that while in fatal cases from chloroform the patients died while upon the operating table and were thus sure to attract public attention, in many of these when ether was the cause of death the fatal issue did not take place for some time

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after the anæsthetic was given. He himself knew of a number of cases of death from ether which had never been published.

CORRESPONDENCE.

THE DANGERS OF COCAINE.

To the Editor of THE MEDICAL NEWS,

SIR: Your timely editorial, to-day, on "Untoward Effects of Cocaine," in which you remark: "The literature of the subject is so scattered that little attention has been given to it," prompts me to say that I have recently devoted no little time to a study of this topic; the result of which was lately presented to the Medical Society of the County of Kings, in a paper on "Cocaine Dosage and Cocaine Addiction," which is, it has been asserted, "the most extensive ever presented on one phase of a subject that is now attracting attention at home and abroad. It referred to forty authorities—English, French, German, Austrian, Russian, and American—and cited more than fifty cases, to which others have been added, in support of the assertion that there is a danger, near and remote, in the use of this drug, on some patients, that does not warrant the reckless disregard of care which one or two opinions lately presented imply."

The cases, noted more or less in detail, showed that cocaine caused toxic symptoms, so marked in four as to produce death. The amount of the drug used varied from a small fraction of a grain to twenty-four grains, and was applied to the eye, ear, nose, throat, larynx, teeth, gums, stomach, bowel, bladder, uterus, urethra, and under the skin.

The symptoms noted were nausea, vomiting, headache, lividity, deafness, blindness, loss of taste and smell, profuse sweats, cold perspiration, gastric cramps; frequent, feeble, irregular, intermittent, uncountable pulse; shallow, gasping, irregular, difficult, convulsive, suspended breathing—artificial respiration required in some cases; speech, gait, and swallowing greatly impaired; rigid muscles, palpitation, sense of suffocation and great constriction about the chest; loss of motion and sensation in arms and legs; intense restlessness. Extreme prostration, vertigo, faintness, feeling of impending death; unconsciousness, convulsions, paralyses, hallucinations, mania, delusions, delirium—death.

Surely, it seems to me, such a record proves the truth of your closing words, "it certainly seems of the greatest importance that the profession in general be reminded that cocaine is not to be used recklessly and without proper care."

I shall be pleased to furnish a reprint of my paper to any who may desire it.

Yours, very cordially,

J. B. MATTISON.

BROOKLYN, 314 STATE STREET, April 9, 1887.

NEWS ITEMS.

PARIS.

(*From our Special Correspondent.*)

METHYLAL.—For some time past therapeutists have sought a new hypnotic among acetals. Methylal, which belongs to these, was first classed by M. Malaguti, in 1839. Methylal is highly volatile. It boils at 42° C. (107.6° F.), and possesses a density of about 0.85. It is soluble in water, alcohol, and oil. M. Personali's experiments proved that methylal rapidly produced sleep in frogs after a dose of 50 per cent. of their own weight; in rabbits, after a dose of 25 per cent. of their weight; in birds, after a dose of 20 per cent.; and in dogs, after a dose of 10 to 16 per cent. A dose of a gramme and a half caused mortality in a pigeon.

Methylal is rapidly eliminated. It modifies the action of the heart, and increases the number of heart-beats during hypnosis. It lowers arterial pressure and increases the cardiac pulsations. At the same time the temperature is lowered. Methylal lessens the activity of exchange in the tissues while it modifies the circulation and respiration. If methylal be administered to a warm-blooded animal at the onset of accidents caused by strychnine, the tetanic convulsions are checked, and the poison being eliminated the animal may recover. In the case of cold-blooded animals, where the process of elimination occupies a considerable time, the toxic phenomena are suspended while the action of the methylal lasts, and reappear when this action ceases.

Methylal may be administered without difficulty, either by hypodermatic method or introduced into the stomach. M. Nicot proposed to administer it externally, prepared with oil of sweet almonds as a liniment, 85 grammes of the excipient to 15 grammes of methylal; or with alcohol at 80 degrees, in the proportion of 10 grammes of methylal to 110 grammes of alcohol and 5 grammes of lavender essence. A pomade might be made with methylal, containing 33 grammes of fatty substances and 5 grammes of the medicament, and an odontalgic mixture with 8 grammes of alsan and 2 grammes of methylal. A potion might be composed of 1 gramme of methylal mixed with 150 grammes of water and currant syrup. A syrup is made with 1½ grammes of methylal to 100 grammes of golden syrup, and an injection composed of 1 gramme of methylal in 125 grammes of gum water.

GIFT OF A NEW BUILDING TO BELLEVUE HOSPITAL.—The corner-stone of the Townsend pavilion annex to Bellevue Hospital was laid with impressive ceremonies on the 11th inst. The new building is for women afflicted with tumors and kindred troubles. It is intended as a thank-offering by Mrs. R. H. L. Townsend, of New York, in gratitude for the success attending an operation upon herself.

Dr. Wylie will be the surgeon in charge of the annex. The building will be of Philadelphia pressed-brick, with blue-stone trimmings. It will have a frontage of 70 feet on First Avenue, and will be connected by an inclosed gallery with the women's surgical ward. It will be a two-story, cottage-like structure. One side will contain wards for patients, each 11 by 16 feet, carefully ventilated, with all modern sanitary and surgical appliances. The rest of the building will be devoted to operations. The cost will be $7000.

THE VASSAR HOSPITAL.—Another monument to the memory of Matthew Vassar, and to the worth of John Guy Vassar, known as the Vassar Brothers' Hospital, was opened at Poughkeepsie last Monday for the recep-

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tion of visitors. It is situated on the bank of the Hudson, at the southwestern edge of the city, and commands a magnificent river view. The architectural design of the building takes in towers and turrets, gabled roofs, and Queen Anne formations, dulled red brick predominating. The building is lighted by gas, heated by steam, and is connected with city water and sewerage. Cook rooms, laundry, dining-room, closets, pantries, bedrooms, pharmacy, operating room, etc., are all fitted up in the best possible manner. All the walls are hard-wood finished, with no mouldings or projecting surfaces. The hospital grounds contain 15 acres, all of which are sodded. The wards are situated in two wings. Iron cots are ranged along each wall, 5 on each side and 10 in a ward, making a total of 40 in the two wings. The floors of the closets are of English tiles, and a system of ventilation by means of pipes running through the building to a tower on the roof carries off all odors. The resident physician is Dr. Guy C. Bayley, and he has 10 physicians on his staff. The property and building are valued at $125,000, and the present endowment is about $300,000. It is free to those who, in the judgment of the Executive Committee, are unable to pay for their board and treatment. Preference is given, first to residents of Poughkeepsie, second, to residents of Dutchess County, and third, to the State at large.

Hospital Mismanagement in Chicago.—The warden and others of the officials of Cook County Hospital have been indicted for fraud by the Grand Jury, and with several of the County Commissioners, with whom they were in connivance, will shortly be tried for fraud and malfeasance. The abuses which they have perpetrated are said to be flagrant and of long standing.

Vermont State Board of Health.—A State Board of Health has just been organized in Vermont, making twenty-nine States which now have State boards.

The Mississippi State Medical Association will hold its sixth annual meeting at Jackson, on Wednesday, April 20th, at which time a number of papers on interesting topics are promised.

American Public Health Association.—The fifteenth annual meeting of the American Public Health Association will be held at Memphis, Tenn., November 8 to 11, 1887. The Executive Committee have selected the following topics for consideration at said meeting: I. The Pollution of Water-supplies. II. The Disposal of Refuse Matter of Cities. III. The Disposal of Refuse Matter of Villages, Summer Resorts, and Isolated Tenements. IV. Animal Diseases Dangerous to Man. The Local Committee of Arrangements at Memphis have already begun the work essential to a large and successful meeting. While the locality alone would insure a large attendance, no efforts will be spared by the Committee to make the meeting both profitable and enjoyable for all who attend. A circular will be issued in ample time before the meeting, giving full information in regard to transportation and hotel rates. All communications relating to local matters should be addressed to G. B. Thornton, M.D., Chairman local Board of Health, Memphis, Tenn. Blank applications for membership can be obtained by addressing the Secretary, Irving A. Watson, Concord, N. H.

Henry Hun, M.D., Harvard Medical College, 1879, has been appointed Professor of Psychological Medicine at the Albany Medical College, *vice* John P. Gray, M.D., deceased.

Certificates of Illness of College Students.—The Faculty of Harvard College has promulgated the extraordinary rule that in all cases in which the college has heretofore required a physician's certificate to the fact of illness of absent students, such certificates must specify the *cause* of illness in order that the faculty may he able to judge of the validity of the excuse for absence! The faculty may not be aware that a similar attempt to require information as to the cause of illness of government employés at Washington was resisted by one of the most prominent practitioners of that city, and that his refusal to comply was supported by the head of the department, Secretary Bayard. The faculty makes the double mistake of requiring the physician to betray his professional confidence and of assuming a power of supervision over a medical oplnion as to the severity of the disease, or the requirements for its treatment.—*Boston Medical and Surgical Journal*, March 31, 1887.

Dr. Holmes and Apothecaries.—At a banquet given to Mr. Theodore Metcalf, by the Boston Druggists' Association, Oliver Wendell Holmes gave his opinion of apothecaries, as follows: "I have always had a great opinion of the medical advice of apothecaries. The truth is, they put up the prescriptions of all the best physicians in the place in which they live, and they have the very cream of all their wisdom at their fingers' ends. So, when I have myself been suffering from any slight bodily inconvenience, I am ashamed to say—or ought to be, perhaps—instead of going to a professional brother, I have quietly crept into the back room and asked Mr. Metcalf what such and such a doctor was in the habit of prescribing."—*Boston Medical and Surgical Journal*, April 7, 1887.

A Pasteur Institute for Havana.—*Las Novedades*, a Spanish newspaper published in New York, has news from Cuba of the return of a commission, consisting of Drs. Tamayo, Vidósola, and Albarrán, from Paris, whither it had been sent, as the result of a movement started by the "Crónica Médico-quirúrgica de la Habana," to study M. Pasteur's system of antirabic inoculation. It is added that the Havana laboratory will soon be in readiness to carry out the system, but that for the present, owing to the lack of proper virus, persons bitten by rabid animals will be sent to Paris.—*New York Medical Journal*, April 9, 1887.

The Microörganisms of the Atmosphere.—In a paper recently read by Dr. Percy Frankland at the Society of Arts on Some of the Conditions affecting the Distribution of Microörganisms in the Atmosphere, reference was made to Pasteur's experiments as showing that mountain air is comparatively free from organisms. Dr. Tyndall had conclusively shown the com-

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paratively short time required for suspended microörganisms to subside in calm air. The various methods used to demonstrate the number of living microörganisms present in a given volume of air, which were only partially successful, were described. Hesse's experiments had brought to light the rapid gravitation of organisms in comparatively still air, and the more rapid gravitation of bacterial organisms than mould-organisms. He (Dr. Frankland) had availed himself of Hesse's method to test the condition of the atmosphere in London and some country places. At Reigate and in Norwich a smaller number of microörganisms was observed than in London. In fact, the more remote the place from human habitations, the freer was the air from suspended microbes. The London parks, though containing fewer microbes than were to be found in the streets, contained more than were present in country air. With regard to sea air, experiments showed that the maximum distance to which, under ordinary circumstances microörganisms can be transported across the sea, lies between 70 and 120 sea miles. Beyond this distance they are almost invariably absent. Dr. Percy Frankland described his system for remedying the defects in Hesse's method of testing the atmosphere. A definite volume of air is drawn, by means of an air-pump, through a short piece of glass tubing containing two small porous plugs placed one in front of the other. Of these two plugs, the first is constructed of glass-wool only, the second being formed of glass-wool and glass or sugar-powder. The object of this arrangement is that the second plug, through which the aspirated air has to pass, shall offer more resistance than the first, and consequently, if the second plug is found to be free from microbes, it may safely be assumed that the first plug has been sufficiently obstructive to the microorganisms in the air passing through, and that they have all been retained by it. Each plug is afterward transferred to a small flask, where the results of the experiment can be examined.—*British Medical Journal*, March 26, 1887.

IMMUNITY OF PLUMBERS FROM SEWER-GAS POISONING.—The assumed fact that plumbers escape disease and infection from the inhalation of sewer-air is often referred to as indicating the harmlessness of this air or gas. Were all the facts known, this view would undoubtedly be much modified. A recent occurrence in England would seem to prove that men who follow this trade are not so exempt as is generally supposed. An inquest was held during the past month, in Liverpool, on the body of a plumber's apprentice who had been engaged during the previous week in repairing pipes which connected with a sewer. Quantities of gas came through these pipes, and at the time the young man complained of pain and sickness; in forty hours he died. The medical evidence was to the effect that death was due to the inhalation of sewer-air, and the jury rendered a verdict to that effect.—*Science*, April 8, 1887.

POISONING BY CARBONIC OXIDE.—It will be remembered that, some months ago, a party of excursionists went on a steamer from Glasgow to witness the effect of certain large blasting operations, which were to take place on Loch Fyne. In the blast, six and a half tons of gunpowder were exploded; and after it was over, the excursionists went on shore to look at the effect of the shock. In a short time many of them were seized with faintness; six of them died almost immediately, one died shortly after, and five were made very sick, but eventually recovered. The results of the scientific inquest which followed this sad affair have been published, and have brought out the fact that the mischief was probably due to carbonic oxide, of which it was calculated 468 pounds could be generated by an explosion of the quantity of gunpowder named above, an amount which, at the ordinary temperature and pressure, would occupy a space of 6333 cubic feet. This would be sufficient to vitiate one hundred times as many cubic feet of air. But, in the presence of carbonic anhydride, of which the explosion would generate 3575 pounds, it would render 1,266,000 cubic feet of air fatal to human life. The symptoms of those who have suffered or died agreed with those attributed to poisoning by carbonic anhydride, and it is said that the blood of one of the deceased was so liquefied after death that it flowed through the coffin.—*Boston Medical and Surgical Journal*, April 7, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 5 TO APRIL 11, 1887.

HOFF, JOHN VAN R., *Captain and Assistant Surgeon.*—Ordered for duty at Fort Reno, Indian Territory.—*S. O. 43, Department of Missouri*, April 4, 1887.

CORBUSIER, W. H., *Captain and Assistant Surgeon.*—Granted leave of absence for one month.—*S. O. 35, Department of Arizona*, March 29, 1887.

BURTON, H. G., *Captain and Assistant Surgeon.*—Ordered to Plattsburg Barracks, New York, for temporary duty.—*S. O. 78, A. G. O.*, April 5, 1887.

LA GARDE, L. A., *Captain and Assistant Surgeon.*—Ordered for duty at Fort Assiniboine, Montana Territory.—*S. O. 78, A. G. O.*, April 5, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING APRIL 9, 1887.

BAILHACHE, P. H., *Surgeon.*—Detailed as Chairman, Board of Examiners, to meet in Washington, April 25, 1887. April 4, 1887.

PURVIANCE, GEORGE, *Surgeon.*—Detailed as member Board of Examiners, to meet in Washington, April 25, 1887. April 4, 1887.

GODFREY, JOHN, *Surgeon.*—Detailed as Recorder, Board of Examiners, to meet in Washington, April 25, 1887. April 4, 1887.

IRWIN, FAIRFAX, *Passed Assistant Surgeon.*—To proceed to Baltimore, Md., on special duty. April 8, 1887.

PETTUS, W. J. *Assistant Surgeon.*—To proceed to Norfolk, Va., for temporary duty. April 4, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, APRIL 23, 1887. No. 17.

ORIGINAL LECTURES.

FATTY HEART, WEAK HEART, PSEUDO-ANGINA PECTORIS, AND ALLIED STATES SUCCESSFULLY TREATED BY A NEW METHOD.

A Clinical Lecture,
Delivered at the Jefferson Medical College Hospital, March, 1887.

BY PROF. ROBERTS BARTHOLOW, M.D., LL.D.

GENTLEMEN: During my present clinical term, now near its end with the closing of the College session, I have called your attention to certain cases of heart disease treated by a method not conformable to the accepted canons of cardiac therapeutics. During my clinical term last year, and before, I have illustrated by example the same therapeutical conception. I purpose now to summarize my opinions and practice and illustrate these anew, by the aid of the case before us and some others that have been in my charge. I am the more inclined to utilize this opportunity before we separate for the present term, because I could not fail to see that those amongst you who had had clinical advantages, either in hospital or private practice, appeared to be somewhat sceptical of a plan of treatment differing in so many respects from that in ordinary use. This judicial attitude is in every way commendable, especially as a hasty approval of novelties is one of the evils of our time.

In the case before us we have a typical example of the most common and sometimes most important of the cardiac diseases under consideration. In the course of my remarks, to make the clinical picture more complete, I shall not hesitate to refer to other characteristic examples. Not to enlarge needlessly on points of minor importance, it will suffice to say that we have here an example of weak heart, and in consequence of the waning strength of the muscular tissue of the organ, the valves are not competent to close the orifices properly. The sounds of the heart are muffled, indistinct, and vary in time, in strength, and in volume. The pulse is arhythmical, and unequal in force and tension, and the walls of the arteries are rigid, this being especially well exhibited in the tortuosity and prominence of the temporals. There is no proper murmur. The position of the præcordial distress, and the manner in which the symptoms have developed, indicate that the right cavities have been the chief seat of the mischief, the incompetence being of the tricuspid.

If the physical signs are not distinctive, the rational signs are eminently so. Now, gentlemen, please consider this statement attentively. It has fundamental importance. The recognition of cardiac lesions is, now-a-days, so much an affair of physical diagnosis that the immense significance of the rational signs is not sufficiently—indeed, sometimes not at all—appreciated. These rational signs are the more dependable when the therapeutical diagnosis is to be decided on; for then the condition of the respiratory and circulatory organs, as manifested by these signs, constitutes the ground on which the treatment must be based.

You must not fail to understand the supreme importance of the rational signs of cardiac disease. Indeed, I may assert that any case in which the physical signs even are unequivocal, has importance in proportion to the extent and severity of the rational signs. The case before us illustrates this principle perfectly. Observe his appearance and manner. His face is pallid, lips purplish, eyes swollen, and his countenance expresses distress and anxiety. His breath is short, evidently embarrassed; he tells us that when he makes any exertion he becomes much oppressed, and that he has at times paroxysms of dyspnœa like asthma. Almost the first symptom that attracted his attention, was seizures of difficult breathing and severe præcordial distress, with pains shooting through the chest, coming on suddenly when walking on the street. These paroxysms compelled him to stop "to get breath" for a few minutes, but a short rest restored him. After a time the difficulty of breathing attended every effort at motion, and at length became constant, compelled him to sit half-erect to sleep, and prevented active exertion of any kind. The permanent difficulty of breathing was coincident with general œdema and more or less pulmonary œdema, which we find to be present now. Every now and then our patient has attacks of pseudo-angina pectoris, coming on after taking some indigestible food, in consequence of some depressing moral emotion, or in attempting exercise, especially in walking against a strong wind. These attacks have the ordinary characteristics of this state: severe pain and constriction of the chest, pain shooting into the left shoulder and arm, irregularity of pulse, feebleness, faintness, pallor, coldness of the surface, difficult breathing, and unspeakable anxiety and distress of mind. There is really no difference between the pseudo- and the true angina pectoris in respect to the complex of symptoms. The real difference consists in the extent of the damage the motor apparatus of the heart has suffered. At the outset, in many of the cases of heart disease under consideration, and for a long time in others, these attacks of pseudo-angina pectoris are almost the only indication of heart trouble, except some weakness and irregularity of action.

I must now ask you to consider briefly the mechanism of these cases. We must carefully analyze the personal and clinical history of the patients, if we would form an accurate conception of the nature of this cardiac affection. As a rule, the individuals who are thus affected lead sedentary lives, make use of a faulty diet, and suffer from the effects of some unwonted exertion or profound moral emotion; or they are, if active, and accustomed to an outdoor life, addicted to fermented

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liquors or spirits; or they have been infected by some specific poison, or under the influence of some dyscrasia. A sedentary life is one of the most influential factors. The patient before us has taken hardly any exercise, indoors or outdoors, and his occupation has permitted him to indulge his natural inclination. I do not mean that our patient is to be compared to the poet Smart, celebrated by Boswell, the incomparable biographer of Johnson. Some one having mentioned that Smart owed his mental failure to a lack of exercise, Johnson characteristically opposed the suggestion. "Before his confinement," said Johnson, "Smart used for exercise to walk to the ale house, but he was *carried* back again." Now our patient did not have sufficient fondness for beer to force him to the ale house, and he has not indulged with any degree of freedom in spirits, so that the degradation of his tissues which we find, must be referred to other causes—to the need of exercise, to a deficient supply of oxygen, and to the lack of proper aliment. His diet has had an important influence over the origin and progress of the degenerative changes. He has always had a fondness for sweets, and for farinaceous foods in general, and these have constituted the principal part of his diet. Thence followed acid indigeston, intestinal fermentation ending in such a production of acid as, probably, to change the normal alkalinity of the intestinal juices to neutral—even to acid. I must ask you to note this point with care. If the intestinal juices do not effect the proper changes in the starch and sugar of the food, what happens? These substances undergo acetic and lactic fermentation, it may be because of the presence of some of the microbes of fermentation. Certain changes in the vascular system are well known to be induced by the presence of a form of lactic acid in the blood. By injecting lactic acid into the blood of animals, and by the administration of lactic acid for diabetes—a practice formerly quite popular—endocarditis and rheumatic fever have been caused. To these pathogenic influences must be added the ill-effects of an insufficient supply of oxygen.

Just consider for a moment. The imperfect primary assimilation charges the blood with crudities. The products of digestion not properly acted on by the oxygen of the air, are ultimately either deposited as mere fatty tissue, or excreted as uric acid and urates. We should not be surprised to find that these processes acting through several years, bring about the pathological changes illustrated in the history of this patient. It has happened to me to meet with various cases, in the course of my private practice, in which the same effects followed the persistent operation of the same causes. Amongst the most perfect examples of the kind coming into my hands, have been some of the judges on the bench, and I shall presently speak with some particularity of the case of an eminent jurist in the Southwest. The enforced quiet of their lives, the extremely sedentary occupation of trying causes, and other circumstances precluding exercise of a sufficient kind, combine in the case of the judges, to bring about the result.

Men of literary tastes, and pursuing mental occupations, have an instinctive fondness for sweet things. If the time were not wanting, and the occasion suitable, I could demonstrate that this fondness for sweets, which I have just said is instinctive, is based on an actual need; they are brain foods, in that they furnish the force and the constructive materials most readily available by the nervous system for work and for repair. Whether this explanation be correct or not, it yet remains that these subjects are given to the consumption of a good deal of saccharine and starchy food.

When the heart falls into a condition of weakness from the causes I have been discussing, it is readily damaged by strain. This is generally admitted and needs no further statement. It is not so well understood, however, that sudden and strong emotion—anger, grief, fear, etc.—may cause the walls of the heart to yield, when certain degenerative changes have occurred in them. It seems to me quite possible, also, that reflex disturbances—severe paroxysms of palpitation—produced by irritation elsewhere, may, also, cause yielding of the walls of the right heart.

When the circulation is carried on in the languid and inefficient way characteristic of weak heart, it follows that all the organs of the body functionate imperfectly, or, at least, slowly. The digestive juices are inadequately produced, and hence this cause of impaired digestion must be added to the others already mentioned. Poorer blood than normal, and an insufficient supply, not only lessens functional activity, but hastens retrograde change. Watery blood favors transudations, and thus the operation of mechanical causes in producing œdema is facilitated.

You will observe that I do not include the cases of heart diseases having their origin in previous attacks of acute rheumatism, nor those secondary to a neighboring pleuritis. I refer to the cases essentially chronic that have developed slowly from the middle period of life onward and out of the conditions, personal and social, which I have described. It may be well, now, to define the pathological change supposed to have taken place. Hitherto, I have indicated the mode in which weak heart is brought about, but it remains now to say something more definite about the actual state of the organ.

The condition of general weakness having occurred, the heart tissues participate to a greater or less extent in the decline of nutritional activity. It is probable that an inherited predisposition is not without influence—for, although the diseases themselves are not transmitted, a certain vulnerability of the cardiac tissues may descend. Whether this have any influence or not, the fact remains that under the conditions already mentioned the heart grows weak by fatty degeneration or fatty substitution. In other words, the muscular substance of the heart undergoes a change in which the muscular elements themselves become granular and fatty, the striæ grow cloudy, and are ultimately obliterated. Or, without being changed in structure, it is supposed, in some instances, that the muscular tissue is displaced by fatty; but it is in a high degree probable that in every case the muscular elements are more or less altered in structure. I have a strong impression that mere weakness of the cardiac muscle, especially of the right heart, is sometimes the sole change, and that under conditions involving sudden strong intravascular pressure, the muscular tissue yields, the cavity enlarges, and hence the valves become incompetent to close the orifices.

Of course, when a patient presents the evidences of atheroma of the bloodvessels, and at the same time the

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symptoms of weak heart appear, it may be supposed that a chronic arteritis of the coronary artery had something to do in bringing about degenerative changes in the muscular tissue. I hold it to be probable that long-continued insufficient action of the heart also promotes the pathological alterations, by limiting the amount of blood passing through the organ in a given time. It is the right heart, more especially, which is first affected, and sometimes it may be the only part of the organ affected throughout.

Of late, current medical literature has contained some fresh statements regarding the part taken by the right heart in the development of the diseases we are now considering, I should have said, probably, *fresh pretensions*—for it has long been known that such is the fact. Twenty years ago a London physician published a most suggestive brochure, in which due importance is given to the dilatation of the right cavities as the initial change. I must again remind you that the physical signs are rather negative, and hence to learn the true condition of affairs we must carefully study the rational. Before any of the more pronounced symptoms, such as have been spoken of, present themselves, the patient has a peculiar uneasiness at or about the ensiform cartilage, usually extending somewhat to the right of the cartilage, and nearly in the position over the right side of the heart. This uneasiness which is not acute pain, is a very distressing and foreboding sensation, accompanied by rather quick, shallow, and oppressed breathing, and a weak pulse. In the severest form the pain assumes the aspect of angina pectoris,,and is associated with a weak, fluttering pulse, faintness, nausea, extreme pallor, a cold sweat, etc. I have no doubt, this peculiar pain, with its accompanying symptoms, is produced by the change going on in the right heart, and hence it has grave significance, and is ominous of future calamity unless the measures instituted will remove the morbid state.

But, gentlemen, I fear I have lingered too long in this preliminary discussion. I must hasten to place before you in one view, the therapeutical measures which I have found so effective. These have been referred to in my didactic course, and have several times, during the past three years, been illustrated by appropriate cases in this clinical hall. Nevertheless, it is desirable to re-state the whole therapeutical plan in the light of my most recent experiences. One of these is described in a letter from which I will read you some sentences. If, as it has been defined, "History is philosophy teaching by example," not less is such a conception applicable to practical therapeutics, and hence cases which teach us the value of a mode of treatment are peculiarly instructive. Especially is this one instructive, for the testimony is independent, and the witness whom we examine is unprejudiced, or if affected by any bias, it was against rather than in favor of the plan—for before I was called on to prescribe the management of the case, all the various remedies to improve the condition of the heart, now most approved, were resorted to in vain, and little hope was entertained of the success of a different method. The patient, an eminent jurist, and the physician, a distinguished practitioner, belong to a city of the Southwest:

March 2, 1887.

"I am happy to inform you that Judge ——— is doing remarkably well. His condition has improved wonderfully under the influence of trinitrin—so much so that he is now able to walk a mile and ascend two flights of stairs without fatigue or oppression. The swelling has entirely disappeared, allowing him to wear a tight shoe. The appetite is fair but is restrained by the patient, who could eat much more than he does. Gain in weight over eight pounds during the last two weeks.

"I must say, however, the improvement came on slowly at first; the patient had to take fifteen drops four times daily before feeling the characteristic pain in the forehead and the flushing of the face. Since, the dose has been gradually reduced to four drops t. d. and the physiological effects of the medicine are invariably produced within a few minutes after its ingestion.

"Now, dear sir, please let me know what is to be done? Must the same dose (4 d., t. d.) be kept up? If so, how long? Or must we stop the medication for a while and resume it later on?

"Liq. potass. arsen. has been faithfully and steadily taken in the dose of two drops thrice daily before meals. If your occupations will permit you to send me further instructions as to the course to be followed, you will confer a great favor upon the judge and upon your most obliged Dr. ———"

Gentlemen, this admirably clear and well-expressed letter gives the facts of the treatment in the most compendious form.

Of course an iron-clad rule, admitting of no variations, cannot be adapted to all cases; but in general terms, the method of treatment consists in a regulated diet, systematized exercise, the use of trinitrin (nitroglycerin) and arsenic.

I should also state the negative side—why digitalis is not given; why iron is avoided, and why the digestive organs are not forced by supplying food of all kinds; but this contention may be settled the more clearly in the course of my observations on the plan under consideration.

I mention foremost among the remedies a regulated diet. You will all bear witness how persistently I have advocated a dietary adapted to the conditions present. Whether the theory I have constructed be true or not, the results have been most fortunate. I have not urged a full diet. I have not prescribed tonics so-called, and remedies to goad the sluggish digestion. The principle has consisted in giving the few foods which the patient can digest, and which can best repair damages. Under the circumstances it is not so much force-developing and heat-producing foods that the patients require, as tissue-making. The sweets, starches, and fats for the most part, are cut off from the diet, and milk, eggs, fresh meat, game, or poultry, and the succulent vegetables are given. I have explained the part which certain kinds of fermentation, stomachal and intestinal, take in some pathological processes, but the reflex effects on the heart's movements are also important. I warn you against large draughts of cold milk. Bulk becomes a cause of offense, and cold affects the heart injuriously through the solar plexus. Only a moderate quantity of hot skimmed milk is admissible, but this is a precious resource. A small amount of fresh meat—beef, mutton, chicken, broiled or roasted, excluding all the parts

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charred in cooking, should be given once a day, and eggs allowed for breakfast. Bread must be eaten in moderation and it should be a day old at least. All hot breads, cakes, pastry, crackers, all gravies, sauces, condiments, pickles, fried articles, dried and preserved fruits, "canned" fruits and vegetables, salted meats, pork, bacon, ham, etc., are strictly prohibited. Such vegetables as lettuce, asparagus, celery, spinach, tomatoes, a single boiled or baked potato, if unexceptionable in quality, are advised. Stewed apple (fresh) without sugar is allowed as a vegetable, or a baked apple at the conclusion of a meal. Berries generally are advised against, unless known to agree, and then only in the fresh state, when they can be eaten quite moderately without the addition of sugar or cream. Such a simple dessert as wine or lemon jelly may be allowed if it does not give trouble.

Such in general terms is the diet of those who have still fairly good digestion; but in cases of extreme gastric disorder, an absolute milk diet may be required, or such modifications made in the dietary just given as experience may demonstrate to be necessary. The capital point is to allow the patient no aliment that can give rise to indigestion or to fermentation in the least degree. After a time the number and quality of the foods can be slowly increased as the condition of the digestive apparatus will permit, but the general plan of alimentation already sketched must be adhered to.

The next point in the treatment is exercise. Rest, but not sleep, is enjoined for a half hour to an hour after meals, and two to three hours after meals, or longer, if digestion be slow, a definite quantity of exercise is prescribed. This is not left to chance, but the amount of exertion the patient can make with safety, is ascertained, and the length of the excursion is slowly increased from day to day. Warn patients against the gymnasium. The constrained exercises taught in these institutions are a fruitful cause of heart trouble, and, hence, I do not advise them. The exercise which can be most accurately adjusted to the requirements of the case is walking, and this should be made an habitual duty. Of late, the necessity of exercise in certain forms of heart disease, has been brought forward from abroad, as a new addition to the present treatment, and, as usual, we are likely to see exercise in heart diseases carried to a ridiculous excess. Those of you who have attended my clinics here for several years past, and have been familiar with my practice, know that I have persistently urged systematized exercise as a means of increasing the strength of the heart and of improving its nutrition. I have not proposed that mountains be scaled, that somersets be turned, or that "ground and lofty tumbling" become the daily occupation. On the contrary, whilst I have advised systematic walking, regularly increased as the improvement warrants, I have sedulously warned against sudden and powerful muscular effort, and all movements that endanger the heart by overstrain. If you ask me why exercise is so important, I will tell you first, that walking increases the quantity of oxygen obtained, thus improving the blood by an addition to the amount of an essential constituent, and by burning off unnecessary materials. Exercise favors nutrition by increasing the quantity of blood received by the tissues in a given time, and this result is as true of the heart as of any other part of the body. Also, regulated exercise, by increasing the work of the heart, improves the tone and energy of the muscular elements.

I have now to call your attention to the application of drugs to the treatment of the fatty heart or weak heart —to the use of the medicinal agents, strictly speaking. In the letter, extracts from which were just now read, the most important of the remedies are named: Trinitrin, or nitroglycerin solution of *one per cent.*, and arsenic. You observe, I do not mention digitalis. I do not, at all, subscribe to the doctrine that digitalis is a "heart tonic." From my point of view this is a pernicious phrase—for, misled by this conception of its mode of action, physicians have not hesitated to administer it under all circumstances, if the heart were only weak. When the arterial tension is high, there is increased resistance to the flow of blood; and, hence, the heart must compensate by putting forth stronger efforts. Now, digitalis, given in the full doses considered proper, raises the arterial tension, and thus adds to the work of the heart, and by slowing the beat whilst the calibre of the vessels is narrowed, the amount of blood distributed is lessened. A fatal case of poisoning by digitalis, reported by Böhm, admirably demonstrates the fallacy of this "heart tonic" notion, and this is, probably, the only fatal case reported free from any source of erroneous interpretation. The victim, a girl, who had taken but one dose, died on the fifth day, suddenly, on attempting to get out of bed. Paralysis of the heart occurred, you see, when a little extra demand was made on its contractile energy. Does not this history throw an ominous light on those cases of fatty heart that die suddenly when taking digitalis as a "heart tonic?"

We have an admirable proof of the utility of physiological investigations as a means of ascertaining the therapeutic powers of remedies in the applications of nitroglycerin to the treatment of diseases; for its real value as a remedy, and the conditions in which it will prove curative, could not otherwise have been known.

The special reasons for its good effects in weak heart are the following:

It lowers the vascular tension by dilating the arterioles;

It increases the rate of the heart's movements;

It lessens that irritability of the nervous system which finds expression in spasm, especially of the nervous system of organic life.

It follows from these actions that the quantity of blood sent through the arterial system is much increased, and this increase includes, of course, the arterioles in the cardiac muscular tissue, and, hence, in this way the heart is provided with more abundant materials for its nutrition. A greater activity of movement, sustained in force, contributes to the reparative process. As the treatment, also, removes the disorders of digestion, and furnishes a more appropriate supply of aliment, the making of good blood is assured, and thus in turn all the tissues of the body gain in nutrition and the functions are rendered more active in a corresponding degree. Under no plan of treatment have I seen so rapid and thorough improvement in the condition of the weak, the anæmic, and the ill-nourished.

The capital fact which I would have you realize in all its significance is, that by this means the nutrition of

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the heart is so promoted that morbid conditions of a dangerous kind are prevented, and, indeed, removed. I am firmly convinced that incompetence of the valves caused by yielding of the weakened walls of the heart, may be recovered from entirely under the influence of these remedial measures.

One of the cases amongst many others which seem to prove this statement, is that of a physician of this city, who in consequence of fatty heart with extreme weakness and irregularity in the action of the organ, was confined to bed, and incapable of movement. The diagnosis of this case had been made by one of our ablest clinicians, and I cannot, therefore, be accused of exaggeration to enhance the merit of the treatment. In this case, as in others we have had under consideration, the original cause of the cardiac derangement was a severe gastro-intestinal catarrh. At the period of maximum cardiac disorder, the stomachal distress was most extreme. The case required the most careful handling, but the final result was that the heart was restored to the normal state, the digestive organs, by a discreet graduation of the quality of the food stuffs, became able ultimately to dispose of a mixed diet, and the patient's health is so completely restored that he has returned to a daily life of most vigorous exertion, undisturbed by those irregularities of the circulation which at one time threatened early dissolution. Many similar cases have been observed, but I prefer to mention those that may be quickly referred to, in answer to the unbelief of the sceptical.

I must state with more particularity the manner of administration of trinitrin. As you have often observed here, I prescribe the one per cent. solution beginning with one drop, and adding one drop at each dose until the characteristic effects are produced. The susceptibility to its action varies greatly. The amount required ranges from one to ten drops for the largest number. When the patient feels the least degree of the action the dose is sufficient, and that quantity should be continued, the intervals being from two to six hours, according to the character of the symptoms, and the persistence of the effects. It follows that the preparation of nitroglycerin used must be such that fine gradations in the quantity administered, can be effected.[1] If the dose necessary to produce distinct physiological effects is large at the outset, it often happens that a considerable reduction can be made and yet the action be maintained. On the other hand, if a small dose suffice at first, after a time it becomes necessary to increase it a little. I am thus particular in referring to these practical matters, because I meet physicians who complain that they cannot accomplish the results claimed by others, and they, therefore, cry out "humbug!" and never suspect that the deficiency may be in themselves. Other medical sceptics and pessimists illustrate the philosophy of Mrs. Gummidge—"Everythink goes contrairy with me."

I must not fail to mention the other remedy—arsenic. I usually prescribe Fowler's solution (two to three drops three times a day); sometimes Pearson's solution of the arseniate of soda (three to six drops three times a day). This remedy plays an important part in several ways:

It removes the morbid state of the gastro-intestinal mucous membrane;

It stimulates the appetite, the primary assimilation, and thus powerfully contributes to improve the nutrition of the body;

It lessens the irritability, and the abnormal readiness of reflex action of the nervous apparatus, and imparts that influence to the cardiac and respiratory functions, which we call *tonic*. I have said nothing about iron and tonics, and all the armamentarium of supporting treatment. I have advised nothing of these remedies because they are hurtful rather than beneficial. They keep the stomach in a turmoil, interfere with the proper alimentation, and in this way retard if they do not prevent improvement. We must not lose our hold on that elementary fact—that blood is made from food and not from medicine, and that other basic truth, that the construction and repair of the tissues can only be effected by good blood.

Above all, I have surely taught in vain if I have not convinced you of the value of simplicity in therapeutics. Not less in medicine than in philosophy, are necessary—"clear thinking and straight seeing." Without these all our efforts are blind and aimless.

[1] At the present time excellent tablets of trinitrin are made. The writer can speak in praise, especially of Wyeth's, which are so made that the dose can be varied with the utmost nicety.

ORIGINAL ARTICLES.

A CASE OF PHTHISIS TREATED FOR EIGHT WEEKS BY RECTAL INJECTIONS OF GAS.

WITH NOTES AND EXPERIMENTS.

By E. L. TRUDEAU, M.D.,
of Saranac Lake, N. Y.

Dr. Bergeon's purposed plan of treatment for diseases of the lungs is put forward as embodying the application of scientific data to clinical medicine, and is so novel a departure, in the field of pulmonary therapeutics, as to demand general attention.

The claims made for the method, and which are still "sub judice," are, first, that by its use antiseptic substances may be conveyed through the lungs; secondly, that the gas injections, on account of the germicidal influence which they exercise on the morbid processes going on in those organs, are a specific in incipient phthisis as well as in acute miliary tuberculosis (which is claimed to have been cured in six weeks by their use) and are beneficial to a greater or less degree in all forms of consumption, bronchitis, and asthma at any stage. As the validity of these claims can only be settled by a comparison of the results noted by many observers, I venture to put the accompanying case on record, with a few experiments and notes made at the time bearing on the germicidal value of the gas.

J. R., æt. nineteen, American, clerk, an only son, mother still living and in good health, father died of apoplexy. Patient had been in good health until August, 1886, when he began to cough; soon afterward he had a hemorrhage, and has been running down steadily ever since. Physical examination March 26, 1887, revealed dulness on percussion over upper two-thirds of right lung, with bronchial breathing under the right clavicle accompanied by many coarse and fine râles. In lower portion of lung

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coarse crackling râles were heard accompanied by fair resonance. At left apex nothing but slight crepitation was made out. Temperature, 8 P.M., 100½°; pulse 120; respiration 28. Patient had lost ten pounds, had occasionally night-sweats, a severe cough, profuse expectoration, breathlessness, and loss of appetite.

Treatment was begun Feb. 4th, and continued without intermission until April 2d, two injections of six litres (six and one-third quarts) of gas each, being given daily. This was soon increased to seven litres at a sitting (fourteen litres daily) and this amount was made use of until the treatment had been continued eight weeks. Dr. Bergeon's directions were minutely followed in every respect, and the freshly made carbonic acid gas passed either through Eaux-Bonnes water, bisulphuret of carbon vapor, or Richfield Springs water.

The patient's vital signs were daily noted, and tabulated as follows:

in mind that improvement quite as marked frequently occurs in this disease without any specific treatment whatever. The procedure, though grotesque and tedious to patient and nurse, apparently produces no disturbance of any of the functions of the body, and, provided the amount of sulphuretted hydrogen introduced is moderate, appears free from danger.

The Eaux-Bonnes water, the bisulphuret of carbon vapor, and the Richfield Springs water, were each made use of in turn. The Eaux-Bonnes water, to which Dr. Bergeon gives the preference, was soon discarded, on account of the very small quantity of sulphuretted hydrogen which remains in the bottles after so long a transportation, as shown by chemical tests. The bisulphuret of carbon vapor produced headache and some intestinal irritation, and was for these reasons discarded, after a few injections. The Richfield water was obtained fresh from the springs, having been bottled a few days previous to use, and

TABLE OF SYMPTOMS.

	Average of pulse, 7 observations at 8 P. M.	Average of temperature 7 observations at 8 P. M.	Average of respiration, 7 observations at 8 P. M.	Expectoration, 24 hours.	Weight.	Sweats.	Physical signs at beginning of treatment.	
							Right lung.	Left lung.
Beginning of treatment	110	100⅗°	27	7 oz. contains bacilli.	148½	Occasionally slight.	Dulness on percussion over upper two-thirds. Bronchial breathing under clavicle, with many fine and coarse râles. In lower portion of lung coarse râles; weakness of vesicular murmur.	No dulness. Some fine râles in suprascapular region.
End of 1st week . .	99	99½	26	×	150½	×		
End of 2d week . .	91	98½	26	.....	154½	.....		
End of 3d week . .	98	99	28	.....	155	.....		
End of 4th week . .	96	98⅕	25	.....	157	.....		
							At end of treatment.	
End of 5th week . .	98	98⅖	24	.....	157	.....		
End of 6th week . .	98	98⅖	25	.....	157	.....	Dulness same over upper two-thirds. Bronchial breathing under clavicle same; a few fine râles only. *No râles below* x; weak vesicular murmur.	No dulness. No râles, except on coughing, and then difficult of detection.
End of 7th week . .	94	98½	23	.....	157	.....		
End of 8th week . .	98	98⅖	26	4 ounces + contains bacilli.	157	None.		
On 2d day, after discontinuing treatment, temperature . . .	.....	100½						

Though noted at this early stage of the case, these results are, on the whole, encouraging, and indicate that the gas exercised a beneficial influence on the suppurative processes going on in the lungs of this patient. The temperature during the last three weeks of treatment, never once reached 99° F., but rose at once on discontinuing the injections for a few days. This would indicate the necessity of continuing treatment for long periods of time, and even after all the symptoms of septic poisoning have disappeared. The tubercle bacilli, however, remained present in the expectoration, and the pulse and respiration fell but little. The physical signs showed no decrease in the area of consolidation, though a very marked diminution in the moist sounds was noted. At the left apex these almost entirely disappeared.

Satisfactory as are these results, it must be borne

was found loaded with sulphuretted hydrogen, containing fully seven per cent. of the gas. It was admirably borne by the intestine, and its rapid absorption was in striking contrast to the tedious manner in which the bisulphuret of carbon vapor was disposed of.

I could not myself detect the odor of the gas in the breath of the patient, and I failed to obtain any appreciable precipitate of sulphide of lead by directing him to blow for ten minutes at a time through a solution of the acetate, immediately after taking the enema.

Sulphurous acid and sulphuretted hydrogen have already been used as germicides in phthisis. Vallin[1] found sulphurous acid efficient in rendering innocuous tubercular products, and Germain Sée[2] considers

[1] Académie de Méd. Séance du 16 Janvier, 1883.
[2] G. Sée, Phthisie Bacillaire des Poumons, Paris, 1884.

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it superior to carbolic and salicylic acids in destroying the bacilli of the disease.

Sulphuretted hydrogen has been tried by Cantani in the form of inhalations in phthisis, and this observer has claimed good results from their use, but its antiseptic value is far less than sulphurous acid. The possibility of its oxidation while passing through the body, whereby its efficiency may be increased, should be kept in view.

As the germicidal value of the gas as it enters the body seems so far to have been assumed rather than demonstrated, the following experiments bearing on this point were instituted.

EXPERIMENTS.—A pure culture of the tubercle bacillus was mixed with two cubic centimetres of sterilized water in sufficient quantity to render the liquid quite opaque, and through this eight litres of gas precisely as taken by the patient were slowly passed by being directed to the bottom of the test-tube through a finely drawn glass pipette. This quantity of carbonic acid is the largest amount that can be used at one treatment, and it was forced through an entire bottle of Eaux Bonnes mineral water moderately heated in order to insure its being thoroughly loaded with the sulphuretted hydrogen. The quantity of sterilized water in which the germs were suspended was so small that as the gas slowly bubbled up through it, they must of necessity have been brought in contact with the entire quantity of the vapor used.

After the operation had been completed, the bacilli were planted in six tubes of coagulated blood serum, and together with two control tubes containing plants made from the same germs prior to the experiment, were all put in the thermostat together.

The remainder of the liquid, containing the microbes which had been subjected to the action of the gas, was taken up in a Koch's inoculating syringe, and injected in the right pleural cavity of two healthy rabbits. Precisely the same experiment was repeated two days later, except that the Richfield water was substituted for the Eaux Bonnes.

In two weeks fifteen out of the sixteen tubes showed an abundant growth of tubercle bacilli.

The four rabbits died on the twenty-sixth, twenty-eighth, thirty-first, and thirty-second days, respectively, and all showed small, cheesy masses in the injected lung, and miliary tubercles scattered through the spleen, liver, pleura, and peritoneum.

The rather unusal rapidity with which death was produced in these animals was no doubt due to the large number of bacilli injected. As the tubercle bacillus, however, is a spore-forming organism, and for this reason most difficult to destroy, and as other bacteria play an important part in the destructive and septic processes of advanced phthisis, the effect of the gas on some of these germs was tested.

The bacterium of blue pus and the staphylococcus pyogenes aureus, were selected for this experiment, as they are both intimately connected with the lesions found in the lungs of consumptive patients. These organisms form no spores, multiply by fission, and are, therefore, more susceptible to the action of chemical substances than the tubercle bacillus.

Pure cultures of the bacterium of blue pus, and the staphylococcus pyogenes aureus were each mixed in two separate tubes, with 2 c.c. sterilized water, and through each tube of the fluid, made appreciably turbid by the microbes, 8 litres of the gas were passed exactly as in the foregoing experiment, the Richfield spring water being chosen. Ten of the twelve agar tubes, planted with the organisms thus treated, showed an abundant growth of both varieties of bacteria in less than three days.

The gas, therefore, as it enters the body appears to have no germicidal value whatever.

A satisfactory conclusion as to the real therapeutic merit of this method, cannot necessarily be reached for many months to come, but so far as the evidence procured by its application to one case for so short a time may be of value, it would seem that rectal injections of gas by Bergeon's method have a beneficial influence on the suppurative processes of phthisis. The method seems deserving of a most thorough and extended investigation, and *though the treatment may prove in the future to be a useful therapeutic measure, a consideration of the facts here presented does not in the least warrant the assumption that a specific for tuberculosis has been discovered.*

A NEW COLOR-TEST (ROUX'S) FOR THE DETECTION OF THE GONOCOCCUS;

WITH REMARKS ON ITS PRACTICAL IMPORTANCE.

BY EDMUND C. WENDT, M.D.,
OF NEW YORK.

FOR the past three years the relation of Neisser's gonococci to gonorrhœa has been engaging my attention. My studies were pursued with the view mainly of adding to our clinical knowledge of the subject, and were carried on conjointly with Dr. Charles W. Allen, of New York. I was early struck with the difficulty, if not the impossibility, of differentiating the microbes of blennorrhœa from similar diplococci.

Like other observers, I was unable to confirm Neisser's statement regarding the characteristic appearance of the specific micrococci of gonorrhœa. And, indeed, it is now generally admitted by those most competent to judge, that the gonococcus is not sufficiently well characterized by its morphological attributes, to admit of our establishing its identity. Again, while it is quite true that, in most cases, the peculiar intracellular grouping of the gonococci will render a diagnosis highly probable, nevertheless, I cannot allow to go unchallenged the claim of Bumm, to the effect that this constitutes a truly pathognomonic sign. Among about one thousand specimens, of various secretions examined, I have several times observed this alleged pathognomonic arrangement of microbes within the pus-corpuscles, although gonorrhœa was quite out of the question.

It was not until I had become thoroughly acquainted with Roux's color-test for gonococci, that I felt confident that blennorrhœa could be diagnosticated with certainty, by the aid of the microscope. The method of Roux was made public at a meeting of the Académie des Sciences, held November 8,

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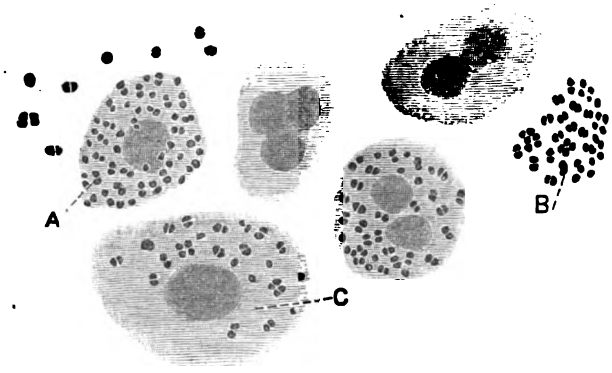
1886. After a considerable number of experiments, I am able to state my belief that it is a reliable one. The method itself is based on the peculiarity of gonococci to hold aniline colors only very loosely, and to become speedily decolorized when subjected to the action of ordinary reagents for that purpose. Although Bumm has found and described no less than five different kinds of diplococci,[1] it does not appear that any but the true gonococci retain aniline colors so poorly as to almost immediately fade from view in the presence of decolorizing fluids. On the contrary, by employing the method of Gram, the ordinary bacteria, as is well known, appear deeply stained. But in a given specimen stained after the manner of Gram, all gonococci invariably disappear, even more quickly than do the anatomical elements thereof.

It appears that Gram's solution of iodine and iodide of potash, so far from fixing the aniline color upon gonococci, as it does upon the other schizomycetes, causes them to give up the stain previously imbibed.

I will now describe, step by step, the method of procedure which I have found to yield the best results, and which differs in no essential respects at least, from that advocated by Roux, to whom is due the credit of having first applied it for purposes of differential diagnosis. The material to be examined is spread in a thin film upon a glass slide by drawing a second slide over it. It is then allowed to dry at the ordinary temperature of the room.[2] The specimen is next stained by one or two drops of a saturated solution of methyl-violet in aniline water. Twenty to thirty seconds are amply sufficient to accomplish this purpose. After washing in distilled water, and placing a cover glass on the slide, it is ready for the first examination. The gonococci are found deeply stained, precisely like all the other microörganisms present in the specimen. The cover-slip is now removed, Gram's solution of iodine in iodide of potassium (iodine 1 part, iodide of potassium 2 parts, distilled water 300 parts) is poured upon the slide and allowed to act for three minutes. After again washing in water, absolute alcohol is poured over the specimen and quickly removed by a gentle stream of water. The cover-slip is now replaced and the specimen submitted to a second examination. This procedure brings out ordinary bacteria in so strikingly beautiful a manner, that it has been called by Friedländer "nearly ideal." But while this is true of microbes in general, the gonococci are found to have disappeared.

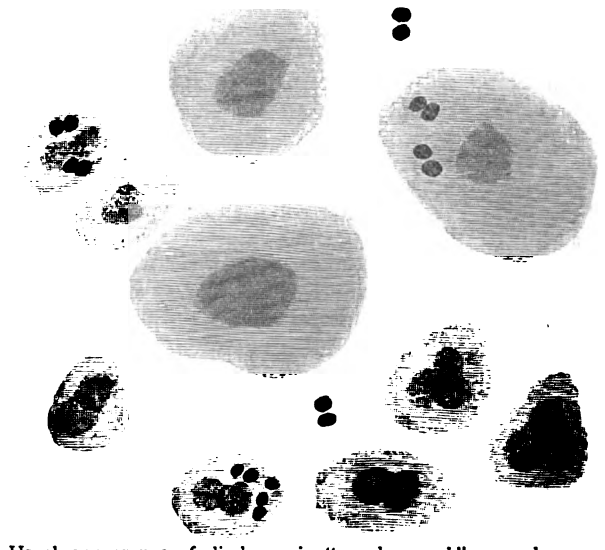
In typical gonorrhœal pus from the male urethra the gonococci exist in such abundance as to overshadow by their presence all other microörganisms. While the intracellular grouping of the microbes is certainly characteristic, that sign alone should not be relied upon in making a positive diagnosis. But if, in addition, the bacteria disappear on the application of the above method, it is safe to assume the presence of blennorrhœa. If, on the other hand, these microörganisms persist, the inference is justifiable that they are not gonococci, even though they should occur in groups within the cells.

FIG. 1.



Usual appearance of the discharge in acute gonorrhœa. A. Intracellular group of gonococci (pathognomonic according to Bumm). B. Extracellular group of gonococci. C. Urethral epithelium containing gonococci. Schematic.

FIG. 2.



Usual appearance of discharge in "nearly cured" gonorrhœa. Schematic.

I have not found it necessary to employ eosine as a contrast-stain, as recommended by Roux. But there is no harm in its employment, and it facilitates focussing in those cases where only gonococci exist in a specimen. The eosine always causes the anatomical elements to reappear with a faint rosy hue, the gonococci also assuming a very faint color. The other bacteria remain purple, and thus a double coloration appears. But it is necessary to have some experience with the use of eosine, or the specimen will be spoiled. I employ an alcoholic solution,

[1] These diplococci were obtained from various sources, such as ordinary atmospheric air, the preputial smegma, the discharge in acute vaginitis of children, etc. They are all accurately described in the second edition of Bumm's work, entitled "Der Mikro-Organismus der Gonorrhoischen Schleimhaut Erkrankungen, Gonococcus Neisser," Wiesbaden, 1877.

[2] I have come to discard the use of heat for drying specimens of gonococci, since their shape is better preserved without passing the glass-slide through the flame.

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and allow it to act about one minute. On the whole, I do not regard it as necessary for purposes of diagnosis.

If the experience of others will be found to substantiate, as Dr. Allen's and my own has done, the claim to absolute accuracy made for his method by Roux, then I doubt not a decided step in advance will have been taken. Those familiar with bacteriological methods know only too well how difficult it is to obtain the supreme proof of the etiological significance of the gonococcus by the implantation of pure cultures. Thus so able and competent an observer as Sternberg was compelled recently to admit (THE MEDICAL NEWS, February 26, 1887) that he had mistaken a non-pathogenic culture of diplococci for one of the true gonococcus, and that, therefore, the negative outcome of his inoculation experiments was devoid of significance.[1]

Bumm himself only succeeded after many futile efforts, and according to him the gonococcus grows well, outside of the body, only upon human blood-serum. Moreover, in our country it would be difficult to find healthy men or women who would submit to having their sexual organs tampered with to the extent of artificially producing, or attempting to produce, a typical gonorrhœa. In Germany there appears to be no lack of "human material" for the experiments of the enterprising mycologist. As gonorrhœa cannot be produced in animals, we must either depend upon microscopical evidence for purposes of diagnosis, or go without. It is for these reasons that the new color-test described above will be welcomed by the practitioner as placing within his reach a ready means of deciding positively as to the true nature of a discharge.

A word of caution is perhaps necessary here. Granting the absolute reliability of Roux's method as applied to intracellular groups of diplococci, it does not follow that the presence, in a suspected discharge, of the microbes of gonorrhœa must result in a communication of disease under favoring conditions. It does prove the infective capacity of a secretion just as positively as the absence of the gonococci proves the opposite. But that is all. It is a well-known clinical fact that exposure to infection does not always result in an attack of the particular disease in question. This is eminently true of gonorrhœa. I have observed cases of married men whose urethral discharges always showed gonococci, but whose wives remained healthy and gave birth to children showing no sign of ophthalmic blennorrhœa.

Bnt it is also true that men with a minimum of discharge containing gonococci have communicated the disease to others. I have never known a case in which infection resulted in the absence of gonococci. And again I have seen a few cases in which all the clinical symptoms of gonorrhœa were present, but in which the abundant creamy discharge contained no gonorrhœal microbes. In these cases recovery resulted in from two to six days, by letting things alone and ordering a placebo. These are doubtless the cases that appear in literature as "cured" by some "original" or novel plan of treatment. A systematic microscopic examination of all suspected secretions will soon dispel all such illusions. True gonorrhœa is never "cured" in less than four weeks. In many cases the process is of much longer duration. At least this has been my experience with the disease. But true gonorrhœa is not a benign urethral catarrh, it is a virulent inflammation due to bacterial invasion. This should be generally recognized by the profession, for there still prevails in our ranks much looseness of conception regarding the true nature of the disease, coupled with a disposition to shirk the responsibility which modern methods of bacterioscopy have entailed upon every earnest, honest, and well-meaning practitioner.

712 MADISON AVENUE.

[1] See Sternberg's articles in THE MEDICAL NEWS, of January 20, 1883, and October 18, 1884.

REPORT OF A CASE OF IMPERFORATE HYMEN,

WITH SEPTICÆMIA BEFORE AND AFTER THE OPERATION FOR ITS RELIEF.[1]

BY C. O'DONOVAN, JR., M.D.,
OF BALTIMORE, MD.

IN reporting this case, from the service of Prof. Wm. L. Howard at the Hospital for the Women of Maryland, I wish to call the attention of the Society to the pulse and temperature range of the patient, rather than to the operation itself for the removal of the imperforate hymen, as it shows that for an indefinite time before and for a period of more than six weeks after, this girl suffered from the septic influence of chronic blood-poisoning; and that it was only by very careful nursing combined with the assiduous administration of remedies to meet the recurring elevation of temperature and frequency of pulse, that she eventually emerged from her dangerous situation. This will become more apparent as I read the history of the case.

C. S., aged fifteen, white, entered the Hospital for the Women of Maryland, on November 19, 1886. She came from Harford Co., Maryland; and had been seen by physicians before leaving home, who had correctly made the diagnosis of imperforate hymen with retained menstrual blood. She was very pale and anæmic in appearance, miserably thin, and showed no external evidence of the development usual at puberty. She was extremely nervous and irritable, so much so that no satisfactory examination could be made until chloroform had been administered. Her temperature was not taken before the operation, but her pulse was always frequent, varying between 96 and 120, and changing markedly during any prolonged observation, due most likely to her nervous irritability. She had never seen any external sign of menstruation, but at irregular intervals, of late more frequent and more regular, she had felt severe pains in her abdomen and back, at which times her condition would become much more serious. When she was thoroughly relaxed by chloroform, a tense cystic tumor could be felt above the

[1] Read before the Baltimore Gynecological and Obstetrical Society.

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symphysis pubis, reaching probably three inches above the symphysis, and easily identified as the uterus, distended by fluid. The external genitals were perfect, but the hymen formed at the mouth of the vagina an absolute barrier to the egress of menstrual blood. The examining finger in the rectum appreciated the presence in the vagina of sufficient fluid to distend it to its fullest capacity, so much so that the uterus was pushed up completely out of reach.

On November 22d, following the method of Emmet, Dr. Howard punctured the vaginal cyst and let out a pint or more of thick chocolate-colored fluid, after which he washed out the vagina thoroughly with hot carbolized water, until the water returned clear. He then cut out with a pair of curved scissors the remnants of the hymen, so that there could be no impediment to the flow. After the operation it was noticed that the lump formed by the distended uterus was still quite apparent above the symphysis, though it seemed not so high in the abdomen. The finger introduced into the vagina could not make out the cervix, on account of the greatly thickened condition of the vaginal walls, which seemed, from the boggy feel they imparted, to be infiltrated with serum. On this account the cavity of the uterus could not be explored.

The treatment after the operation consisted only of rest in bed, and a copious vaginal douche morning and night of hot carbolized water. Her pulse continued frequent, from 100 to 110; but otherwise she progressed satisfactorily until November 26th, four days after the operation, when she complained about midday of a slight chill. At 1 P.M., her pulse was 138, her temperature 98.6°. She was ordered quiniæ sulph. gr. iij every three hours; but at 8.30 P.M. her pulse was 108, her temperature 100°. From this she developed quite a severe attack of septicæmia, with the following daily range of pulse and temperature:

			Pulse.	Temperature.
November	27, 12.05	P. M.	142	100 °
"	27, 9.	"	144	100.4
"	28, 9.	"	160	100.6
"	29, 7.	"	138	100
"	30, 10.30	A. M.	108	99.6
"	30, 9.	P. M.	132	102 4
December	1, 2.30	"	162	102 6
"	1, 9.	"	120	100.4
"	2, 11.	A. M.	135	99 4
"	2, 9.	P. M.	125	101.4
"	3, 1.	"	125	99
"	4, 11.	A. M.	125	99.4
"	5, 2.	P. M.	125	100
"	6, 1.	"	125	99 5
"	7, 9.	"	125	101

This will show the extent of her attack and its subsidence, much more gradual than appears from the table, for at the last rate of pulse and temperature she continued for about three weeks longer, by which time she had gathered sufficient strength to be able to be up and about the Hospital. Her treatment during the elevation of temperature was moderate doses of quinine and of syr. ferri, with forced feeding, principally milk, and some alcoholic stimulation. The vaginal douche was continued throughout convalescence. When her condition was worst, with a pulse of 162 and temperature of 102.6°, on December 1st, the advisability of making an abdominal incision and washing out the pelvic cavity was considered, but postponed; meanwhile her symptoms became much more favorable, rendering operation unnecessary.

On December 22d she was thoroughly examined, and the cervix could readily be felt, but the vaginal walls were still so thick and infiltrated that little definite could be said of the condition of the pelvic organs. Dr. Howard announced his belief that she had a retrouterine hæmatocele, which had existed for an indefinite time, and that her septic symptoms arose from the absorption of material from this mass. This was conjectural, for nothing definite could be felt. She was ordered two of Blaud's pills after each meal, and gradually improved. On January 7, 1887, syr. ferri gtt. xv. t. i. d. was substituted. The cervix could then be felt, high up in the vagina, and soft. The anterior and posterior vaginal walls continued greatly thickened, and infiltrated with serum. Strange to say, she has not menstruated since the operation, although her general health has greatly improved, and her appearance is vastly better.

REMOVAL OF AN ENORMOUS CALCULUS FROM THE PELVIS OF THE KIDNEY BY LUMBAR INCISION, WITH REMARKS.[1]

BY FRANCIS J. SHEPHERD, M.D.,
PROFESSOR OF ANATOMY IN MCGILL UNIVERSITY, SURGEON TO THE MONTREAL GENERAL HOSPITAL.

THE following case is of interest not only on account of the large size of the stone removed, but also because the question of the comparative merits of nephrotomy and nephrectomy is raised in such conditions of the kidney as existed in this case. The patient was sent to me by Dr. J. R. Johnston, of Spring Valley, Minnesota, with a letter stating he suspected the man was suffering from stone in the kidney.

The history of the case and condition on entrance I quote from the Hospital Report:

"W. C., aged twenty-six, was admitted into the Montreal General Hospital on the 18th of October, 1886, with a history of long-continued pain in the left lumbar region and pus in the urine.

"*History.*—Family and personal history good. Seven years ago he first noticed that small quantities of blood were passed in the urine at the end of micturition; four years ago blood was mixed with the urine, giving it a smoky appearance. Has seen no blood in his urine for two years. During the last seven years he has been troubled with continuous pain, not always very severe, in the left loin, occasionally radiating downward to the crest of the ilium. He occasionally has periods of very severe pain lasting for some two or three weeks, after which he is comparatively well; of late years these periods of pain have not been so frequent, and when they do occur the pain is of a sickening character and causes morning vomiting. Sudden movement, as sneezing and coughing, brings on an attack of pain. Five

[1] Read before the Montreal Medico-Chirurgical Society, March 25, 1887.

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years ago first noticed a whitish deposit in urine; up to a few months ago this was quite small in amount, and was passed with the morning urine. No history of renal colic.

"*Present condition.*—Is a fairly well nourished young man, of medium size, and with an anxious expression of countenance; complains of dull, aching pain in left lumbar region, and immediately below the last rib, in the axillary line, is a very tender spot the size of a twenty-five cent piece. He says the pain radiates from this point. Urine has a specific gravity of 1.015, and contains 15–25 per cent. of pus. Some days there is only a trace of pus. At other times there is as much as 25 per cent. Urea, 7½ grains to an ounce. Amount of urine daily excreted, 40–50 ounces.

"By external examination no tumor or fulness can be detected on the left side."

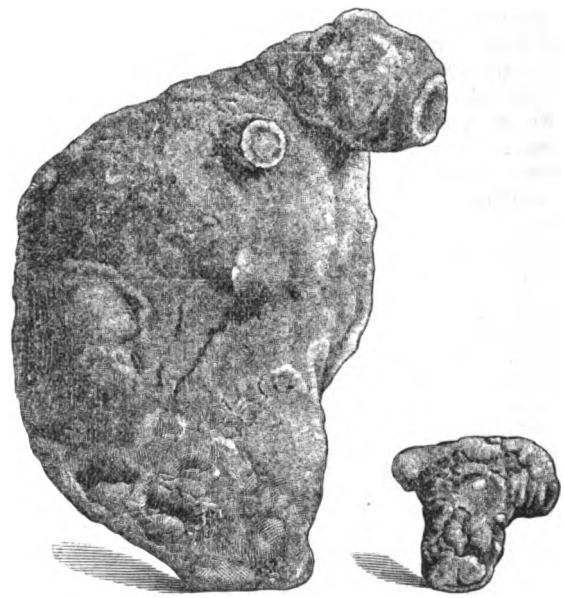
On the 28th of October he was put under ether and the abdomen thoroughly examined by both Dr. George Ross and myself, but no tumor could be made out. The left loin was carefully explored with the long needle of an aspirator, but failed to reach either pus or a calculus. It was concluded from the history of the case and the symptoms that a stone probably existed in the pelvis of the left kidney; so, after consultation with my colleagues, I decided to cut down on the left kidney by lumbar incision, and explore it.

Operation.—October 30th, the patient being under ether, was placed on his right side, with a hard pillow under the right lumbar region, and a horizontal incision was made close below the last rib of the left side, commencing at the edge of the erector spinæ muscles, and extending downward and forward for some five to six inches. After dividing the muscles of the abdomen, the quadratus lumborum was reached, the lumbar fascia divided, and the kidney searched for; the lower end was felt at a considerable depth, in fact, it could be barely reached with the fore and middle fingers of the right hand, so the opening in the loin was enlarged by an incision at right angles to the first, making the wound a crucial one. A long needle was introduced into the kidney and a calculus was immediately felt. The kidney being steadied by pressure from without, I made an incision down to the stone in the long axis of the organ, of some three inches. Through this incision an immense stone could be felt with the finger, but owing to its great fixity and large size it could not be dislodged. Whilst endeavoring to remove the stone, I accidentally ruptured a large artery, which ran to the lower end of the kidney, and was no doubt a supernumerary renal; the hemorrhage was profuse, and I immediately introduced one hand into the wound, and so prevented further bleeding, whilst with the other I managed to catch the bleeding vessel with a pair of long artery forceps.

The stone proved too large to be grasped by a lithotrite, and too hard to be broken by a cutting forceps. I attempted to break it with a chisel and mallet, but failed because of the difficulty of getting fixation of the kidney. The incision in the kidney was now further enlarged, and the stone gradually separated from the kidney tissue with the finger; even now, owing to the prolongations into the calices, the stone could not be removed. With considerable difficulty I managed to free the lower end of the stone which blocked the entrance of the ureter, and lifting it up, requested Dr. James Bell to grasp it with a pair of large lithotomy forceps; this was done, and the stone was brought away after the expenditure of considerable force. On examining the removed stone, it was seen that there were a couple of projections on it, one of which appeared to have been freshly broken off; so the hand was again introduced into the wound and a large fragment removed from a calyx; other smaller pieces were also removed. As the patient had been already an hour on the table, and was becoming weak from shock and loss of blood, no further exploration took place.

During the operation not a single drop of pus was seen; none apparently surrounded the stone, which was quite closely embraced by the surrounding kidney substance. So far as naked eye appearances went, the part of the kidney seen was perfectly healthy.

At one time I thought it would be necessary to remove the kidney, as it seemed impossible to remove the stone without it, but the very healthy appearance of the portion of the organ seen (the lower end), and the absence of pus, determined me to persevere, and, if possible, remove the stone and leave the kidney till the condition of the other could be ascertained. At no time during the operation could the kidney be brought to the surface,



Side view, natural size.

and the operation had to be performed by feeling more than by sight.

After washing out the wound thoroughly with a 1 : 2000 solution of corrosive sublimate, and introducing a large drainage tube, the wound was brought together with silk sutures and dressed with sublimate jute pads. At the close of the operation the

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patient was in a fairly good condition, and did not show much evidence of shock; and, although he had lost a considerable amount of blood, his pulse was full and strong, and not more than 80.

The weight of the removed stone and fragments immediately after the operation was 4 oz. 7 drachms. It measured 3½ inches in length, and 9 inches in circumference, and consisted entirely of triple phosphate.

After the operation, which took place at 2 P.M., the patient did not pass any urine till noon next day, when he voided 7½ oz. As there had been a great deal of oozing, the wound was dressed next day. Temperature 101°. Pulse 120. He still had vomiting from the ether.

Nov. 1. He passed 32 oz. of urine which was free from pus and blood.

For some time the patient progressed slowly toward recovery; his temperature ranged between 98° and 100°, and the amount of urine from 25 oz. to 50 oz. daily. The wound, which was not very sweet, and from which came large quantities of urine, gradually healed, and the tube was removed in the early part of December. He now began to have high and irregular temperature, with some sweating; from the 10th to the 25th of December his temperature ranged from 98° to 102°, and for several days after reached, in the afternoon, as high as 104°–105°. Fearing that some collection of pus was forming about the kidney, I reopened the wound, introduced my fingers, and explored the pelvis of the kidney, but without result, except that a few flakes of calcareous matter were brought away. It was now decided to cut down and remove the kidney, but the patient quite unexpectedly took a turn for the better, and improved so much that, in the early part of January, he was able to go about the ward, enjoy his meals, and gain flesh. The sinus in his right loin never healed, but continued to discharge large quantities of urine with a small amount of pus. At this time my service at the hospital having expired, I only saw my patient occasionally. His temperature was for several days quite normal, and then for a time would range as high as 101°. The amount of urine varied from 30 oz. to 40 oz. daily. I saw him early in February, going about, and apparently in fair condition. On the 10th of February he suddenly became jaundiced, his temperature rose to 102°, and he had severe sweatings. I saw him, and examined his side carefully, but could discover no evidence of any collection of pus about the wound, and the amount of urine reached 40 oz. daily. The fistulous opening in his side discharged urine freely, and a very small amount of pus stained the dressings. He gradually became worse, and died comatose on the 14th of February, three and a half months after the operation.

The autopsy was performed by Dr. Wyatt Johnston, pathologist to the hospital, and the following is taken from his report: "Body jaundiced. In left lumbar region a depressed cicatrix about two inches long is seen with a sinus toward the centre, from which fetid pus can be squeezed out. On opening the abdomen a large oval mass is seen in left lumbar and extending up into the left hypochondriac region. This mass has a quantity of fibrous exudation surrounding it and is very difficult to remove, being firmly attached to the lumbar muscles, spleen, and vault of the diaphragm. The retro-peritoneal glands are acutely swollen, but show no signs of suppuration. The aorta and vena cava are not directly involved in the mass and can be readily dissected off. Near the inferior extremity of kidney, two inches above the crest of the ilium, a small artery one and a half inches long running directly from aorta to kidney, is seen; it is obliterated, apparently from a ligature. The fatty capsule of the kidney is densely infiltrated with fibrous tissue and cannot be removed without tearing the kidney substance; the left kidney itself is greatly enlarged and forms a fluctuating mass weighing nearly 1000 grammes. On opening the pelvis a little fetid pus escapes and the sinus in the loin is seen to open into it. On palpation a small calculus mass can be felt toward the cortex in one of the calices of the kidney, the calculus is the size of a hazelnut and appears to be broken off in one spot. It is enclosed in a small pocket of pus. The ureter immediately below the pelvis of the kidney is completely obstructed and its walls are much thickened. On incising the kidney along its convexity it is found to consist in the upper portion of a series of large communicating sacs containing over ten ounces of fetid pus. These cavities do not communicate with the sinus or the pelvis of the kidney, but are completely shut off from the rest of the kidney by thick fibrous walls, showing that the disease is of long standing. Within these sacs lie five or six irregular-branched calculi, varying in size from a bean to a walnut. The lower fourth of the kidney contains a considerable quantity of healthy renal structure. Bladder and lower part of ureter normal. Right kidney double normal size and looks to be perfectly healthy. Liver shows numerous enlarged lymph glands lying beside the bile ducts, but bile can be easily expressed. Other organs healthy."

There is not the slightest doubt that this patient died of septicæmia due to the fetid abscesses in the upper end of the kidney. These could not be diagnosticated by external manipulation, and from the fact that the part of the kidney seen at the operation was healthy in appearance and contained no pus, the condition of its upper end was not suspected.

So far as the operation itself went, it was successful, but one lesson may be learned from this case, viz.: that with a large stone in the pelvis it is almost impossible to have a kidney which has not undergone grave changes, and its thorough exploration by incision is indicated. Had there been pus around the stone and the kidney tissue not looked so healthy, I should have attempted to remove the kidney, but I had in my mind a specimen in the Museum of the Medical Faculty of McGill University, where the pelvis of each kidney, in a man, is filled by an enormous stone whilst the surrounding kidney structure is comparatively healthy and where there was not a drop of pus[1] or the sign of disor-

[1] This case is reported by Dr. J. A. McDonald in vol. xii. of Canada Medical and Surgical Journal.

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ganization. In my case, however, although in the immediate neighborhood of the large calculus the kidney was healthy, yet the greater portion was composed of pus cavities containing stones unconnected with that in the pelvis.

The kidney was placed so deeply and situated so high up that, with even the very extensive lumbar incision which was made, it could not be properly explored, and I very much doubt if it could have been successfully removed by the loin. Its removal, owing to the numerous adhesions to important organs and its location, would have been a matter of serious difficulty, if not an impossibility, even by abdominal incision, for at the autopsy by the combined abdominal and lumbar incision it was only by cutting freely the surrounding parts that its excision was accomplished.

In such a case incising the kidney in every part, evacuating the pus, and removing the calculi would be the proper procedure. Diseased kidneys which enlarge downward are much easier to remove by lumbar and also abdominal incision, than those which enlarge upward and are wholly under cover of the ribs.

There is another point about this case which is worthy of notice and it is this: When a kidney is highly placed it may be enlarged so as to form a considerably sized tumor which cannot be detected by the most careful palpation even when the patient is placed under ether. The failure to find the stone by needle exploration, before the operation, was due to the same cause—the high position of the tumor and its great depth.

In connection with this case I might mention one reported by Prof. Guyon, of Paris,[1] which is very similar to the one narrated above. In Guyon's case, however, a distinct tumor could be felt externally. After cutting down on the tumor and incising it he found the pelvis of the kidney completely filled by an enormous stone with processes extending into the calices, these processes were cut off with forceps and the large calculus extracted with difficulty; after the removal of the smaller pieces, the pelvis of the kidney was explored with the finger and sound and no more stones could be felt. The patient died some two weeks after from hæmoptysis, and at the autopsy it was found that the kidney was so adherent to the surrounding parts that it probably could not have been extirpated. Several more stones were found in the upper end of the kidney in cavities separated from the pelvis by connective tissue. Prof. Guyon, in the course of his remarks on this case, states that here nephrotomy was preferable to nephrectomy, and that had the kidney been properly incised the other stones would have been found, that in such cases the kidney should be freely incised and every nook and cranny explored; he holds that if this were done in cases of calculous pyelitis nephrectomy would never be called for.

Formerly it was feared that free incision of the kidney would cause severe and dangerous hemorrhages, but experience has taught surgeons that the danger is an imaginary one, and that kidneys which are much disorganized may be incised without fear of bleeding, and that even in healthy kidneys the hemorrhage from incisions is easily and permanently controlled by pressure.

In such cases as the one above narrated, where the stone is of great size and the kidney is enlarged, the mere extraction of the stone in the pelvis should not satisfy the operator; he should thoroughly examine the kidney in every part by free incisions so as to be sure no calculus is left behind. External manipulation of the kidney is not sufficient to detect stone, and in such cases as my own, even exploration through the kidney pelvis would fail, without further incision, to detect calculi unconnected with that in the pelvis.

Up to a short time ago the largest stone removed by lumbar incision was under two ounces in weight. Lauenstein[1] reports a successful case of removal of a large calculus (weighing 25 grammes and composed of the triple phosphates) from the pelvis of the kidney. He had to break the stone with a lithotrite before he could extract it. In his paper he states that it was the largest stone removed up to that time, though not the heaviest. Three months after the operation the sinus in the loin had completely healed and when the article was written the patient was perfectly well.

Dr. John Neill,[2] after relating a case of large renal calculus found after death, quotes from *Cyclop. Pract. Med.* the following case: "A remarkable instance of such calculus occurred in the person of a natural daughter of Sir Richard Steele. No nephritic symptoms took place until shortly before death, when severe pain was felt in the region of the right kidney, fever followed and speedily proved fatal. A calculus of oxalate of lime weighing 7½ ounces was found in the right kidney which was so thin by absorption as to be reduced to a mere membrane. In this instance the stone could be felt, during life through the loins, inducing a belief that the kidney had become ossified (Catal. Museum of Royal Coll. Surg., London. Note by John Hunter)." In this case there was evidently but little suppuration, or the stone could not have been so easily recognized.

Mr. Victor Horsley[3] on Sept. 16, 1885, removed a stone weighing 2¼ ounces from the pelvis of the kidney of a middle aged woman; ten days after she was doing well. It was the largest stone removed from the kidney up to that time.

Mr. W. L. Brown[4] reported a case before the Birmingham and Midland Counties Branch of the British Medical Association, in May last, where he had removed from the kidney by abdominal section a stone weighing 11 ounces. The kidney tumor occupied the right half of the abdomen and contained three pints of pus. The cut edges of the cyst were stitched to the abdominal walls and the cavity drained. The patient died suddenly eleven days after the operation from heart clot. So far as I know, the stone in my case is the largest ever removed by lumbar incision.

[1] La Semaine Médicale, Feb. 10, 1887.

[1] Archiv für klin. Chir., Bd. 34, Heft 1, 1886.
[2] American Journal of the Medical Sciences, July, 1849, p. 121.
[3] Brit. Med. Journ., Sept. 26, 1885.
[4] Ibid., March 6, 1886.

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ELEPHANTIASIS ARABUM OF THE EXTERNAL GENITALS OF A NEGRESS.

BY WILLIAM E. MOSELEY, M.D.,
AND
ROBERT B. MORISON, M.D.,
OF BALTIMORE.

MRS. G., a large, powerfully built, dark negro woman, apparently between forty and fifty years of age, first presented herself at my private dispensary July 15, 1886. Although a fairly intelligent woman for one of her class, it was difficult to get anything like an exact history of her case. So far as I could find out, her family history was good, as had also been her own general health previous to the first appearance of her present trouble. Her early menstrual history was normal, and since her marriage, whenever she was neither pregnant nor nursing, the flow has recurred regularly and normally, except for an occasional menorrhagia, which, together with a free leucorrhœa (both vaginal and cervical), can be accounted for by the lacerated cervix and perineum and subinvoluted uterus which exist. She has had fourteen living children and several abortions. The last child was born four years ago, and the last abortion (at about one or two months) occurred in April, 1886, only three months before I first saw her.

Some eight or nine years ago she first noticed a decided itching and burning about the vulva and extending into the vagina, which condition was soon followed by what she called "blood boils" about the vulva, and which were accompanied by a great deal of pain and discharge. Following this there was general enlargement of the right *labium major*, and about the same time itching and burning in the fold under each mammary gland, and a thickened condition of the skin in that location.

From that time the disease steadily increased until, when I first saw her, her condition was as follows: The skin in each axilla and in the fold directly under each mamma was much thickened and lying in folds. The skin over the mons veneris was thick, hard, and nodulated, as was also much of that over the nates and around the anus. The right labium major was a large pendulous mass, measuring fully 7 inches in length, 4 inches in breadth, and 2½ inches in thickness. [The exact measurements of the growth, after being in alcohol for nearly five months, are, length 14 cm. (5½ inches), breadth 7.5 cm. (3 inches), thickness 5 cm. (2 inches).] The mass had a hard but rather boggy feel, the skin thickened, and in the lower portion it had a peculiar warty appearance, due to the enormously enlarged papillæ. The left labium major was about one-third the size of the right, was softer and more elastic, and the skin less thickened. The diseased parts were constantly moist, and the only complaint of the patient, aside from the inconvenience of having so large a mass hanging down between her thighs, was the intolerable itching and burning wherever the diseased condition showed itself, together with certain "hot spells and pricking and crawling in the flesh all over." She is able to do considerable work, but is not as strong a woman as one would expect to find in a person of her age and build. Neither the nymphæ nor clitoris were at all involved.

As the weather was very warm, and any prolonged stay in bed would be most uncomfortable, I postponed surgical interference until the fall, giving her a saturated solution of boracic acid for local application, and from the use of which she obtained great relief.

On October 21st, under ether, I removed the right labium major, by means of a Paquelin knife, kept at the lowest possible cutting heat. In spite of every precaution, there was very free hemorrhage, the bloodvessels, especially the veins, being enormously dilated. Bleeding points were tied, and the line of incision sustained by a number of silver sutures. The wound was washed out daily, and dressed with iodoform and tarred jute. Healing took place very promptly, considering the method of operating, and the unavoidable sources of irritation. About half the diseased tissue over the mons veneris was dissected off with a knife, and the edges brought together. This portion healed by first intention. It was thought best to leave the left labium major for a second operation; and as it is the cause of a good deal of discomfort, and is increasing very perceptibly in size, it will be removed at an early date. At this writing there is no sign of any return of the disease on the right side of the vulva.

An item of some interest, as showing an anatomical peculiarity of the male negro, is developed by recalling the fact that in spite of the decided obstruction to coitus offered by the enlarged external lips, this woman aborted only three months previous to my first seeing her.

MICROSCOPICAL EXAMINATION.[1]—The horny layer of the epidermis was normal in its thickness, nor was it changed in its general characteristics. It was intact and the flattened cells, of which it is composed, were unaltered in their relative position or their size. Where in the papillæ the lymph vessels had become so much dilated as to occupy the entire papilla, and lower layer of epidermis, the horny layer stretched across the space forming its upper boundary.

In the rete Malpighii the epidermic cells, especially those in the lowest layer which joins the connective tissue of the corium, were larger than normal. They were swollen, their outer membrane more than usually distinct, and their nucleus or nuclei also enlarged, while the nucleolus was small, and pushed apparently to one side in the nucleus. The peculiar arrangement of pigment in this layer, which is to be described later on, was its most striking feature.

The papillæ were abnormally irregular in length and breadth. Here and there, owing to the dilatation of the lymph-vessels, they were entirely absorbed, and a thin layer of epidermis was all that held their portion of the skin intact. In many places where the vessels of the papillæ were visible, the lymph-vessels were dilated and their contour uneven; no hair follicles were found in any of the sections

[1] The histological investigation was made by Dr. Morison in the Johns Hopkins Laboratory.

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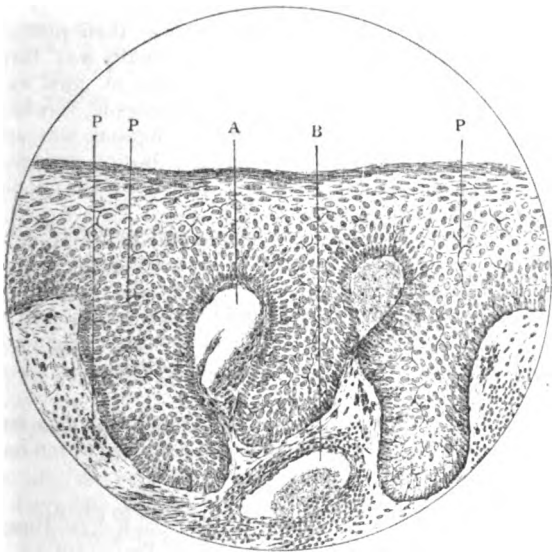
examined. The sweat glands were the seat of a well-defined round cell infiltration, and their bloodvessels were enlarged, but their usual glandular appearance was not obliterated or altered.

The vessels of the corium were somewhat dilated and were surrounded with round cell infiltration, which, however, affected more intensely the lymph-vessels. The latter vessels were dilated, uneven in outline, or completely filled with lymphoid cells. Their endothelial lining was thickened, and in the tissues around them there was an infiltration of lymphoid cells. The thickening of the endothelium in the smaller lymph-vessels was sufficient to render them impassable. All through the connective tissue of the corium, small and large dilatations of the lymph-vessels were seen. Many of these were lined with endothelium and filled with fibrin. The endothelium was thickened, the nuclei could be beautifully stained, while here and there it was torn away from the surrounding tissue, and lay with one free end within the space itself. See A and B.



A. Dilated lymph-vessel with the endothelium torn.
B. Dilated lymph-space containing fibrin, and surrounded by wandering lymph-corpuscles.
P. Pigment granules, which are seen in clusters at various points in the corium and as ramifying lines in the epidermis.

(We wish to acknowledge our obligation to Dr. A. C. Abbot, of the Pathological Laboratory, Johns Hopkins University, for this drawing.)

The connective tissue-fibres were thickened. The smooth muscular fibres of the skin were enlarged and increased in number.

The nerves, as far as an examination of them was possible, seemed to be unchanged.

All the microscopical appearances here described point this specimen out as coming from a typical case of E. Arabum. The changes in the size and the contour of the lymph-vessels and spaces, the increase in the size and number of the smooth muscular fibres, and the swollen appearance of the epidermis are all characteristics of this disease.

Allusion was made above to the remarkable arrangement of pigment seen in this specimen. In the corium, underneath the line of the papillæ, a comparatively large quantity of pigment granules was visible. It was collected together in small heaps within round and branching cells, and also apparently scattered about in fine granules without them. In the epidermis, besides the ordinary collection of pigment in the lower layers of the rete Malpighii, it was seen to run upward from these layers in chains of very fine granules, so that it made a network of dark lines, which surrounded the epidermic cells as far up as the horny layer. It gave the sections the appearance of having been stained with gold. (See P.)

As this is a most unusual appearance in the skin, even of a negro, where the pigment is so profuse, the question of how it happened to be thus arranged is an interesting one.

Experiments by Key, Retzius and by Unna tend to prove the fact that the lymph circulates in the epidermis between the epidermic cells. Injections of the lymphatics of an œdematous skin with gold have shown that the gold will sometimes penetrate between the epidermic cells, as far as the horny layer. Unna supposes that, in an œdematous skin where the lymph spaces are enlarged, the pigment, if present in the lower layers, is taken up by the lymph-bodies and deposited between the cells of the epidermis.

In the specimen here described, although in places the pigment was seen to be within cells, it was apparently for the most part without them. The fine network of dark lines was probably made by the lymph bodies, which deposited the pigment as they circulated between the epidermic cells.

MEDICAL PROGRESS.

The Use of Iodoform Gauze in Gynecology. —Fritsch writes, in the *Centralblatt für Gynäkologie* of March 12, 1887, as follows regarding the uses of this material in gynecology; he uses it principally for tampons, choosing gauze containing ten per cent. of iodoform, the drug being in the form of powder or suspended in glycerine. The tampons used are made of pledgets three-fourths of an inch long and about two inches wide, combined as occasion demands. They remain longer antiseptic than material dipped in five per cent. solution of carbolic acid, they can be left *in situ* from four to six days, and can be removed without pain and often by the patient herself. These advantages find excellent illustration in the palliative treatment of carcinoma; Fritsch calls his method of treating this affection by this means the "dry" treatment of carcinoma. The secretion, hemorrhage, decomposition, and pain are lessened, so that the patient is able to go about with comfort; cases of cancer have been kept without odor until death by this means. In a number of cases the uterus was reduced to a mere shell, the inner surface of which presented a mass of anæmic granulation tissue. Fritsch has, in many cases, curetted away the cancerous tissue and cauterized its site with the Paquelin thermo-cautery; the uterine cavity has then been thoroughly powdered with iodoform and

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tannin, and to stop bleeding and favor uterine contraction a tampon is placed in the uterine cavity which may remain there five or six days. The after-treatment consists in the insertion twice weekly of iodoform and tannin or iodoform and glycerine tampons; they may be most easily inserted by curved dressing forceps.

Iodoform gauze is also used with good results as a tampon after the removal of placentæ and the remnants of ova left after abortion; the uterus should be first gently curetted, washed out with an antiseptic fluid, and then tamponed with gauze.

The cervix may also be tamponed to advantage after the various operations which are there performed.

After removal of cancer of the uterus and pelvic sarcomata, where the peritoneum cannot be united over the stump, iodoform gauze should be packed into the wound; by virtue of its absorbent powers it will serve as a most efficient means of drainage and disinfection.

After laparotomies, in which the tissues are so diseased that it is impossible to unite by means of suture, the tissues should be powdered with iodoform, and brought together by gauze compresses, and from the lower end of the wound a strip of gauze should emerge for drainage. The so-called "capillary drainage" of serum and other fluids of the wound effected by the gauze is very marked; iodoform poisoning was never observed.

The writer cites 6 complicated cases—3 ovarian tumors, one of which had suppurated; 2 extrauterine pregnancies; and 1 carcinoma of the body of the uterus which healed promptly after operation by the method described.

ON THE DIFFERENT MODES OF ADMINISTERING MERCURY IN SYPHILIS, AND THE INDICATIONS FOR THEIR APPLICATION.—At the meeting of the Medical Society of London, held February 21, 1887, DR. E. MILNER stated that he believed that mercurial preparations might be administered somewhat as follows: Green iodide of mercury with Donovan's solution in large doses in light-haired people, especially wine-drinking females who suffer from an obstinate vesicular eruption. German blue ointment in the incipient tubercular syphilide occurring in dark-haired beer-drinkers. In drunkards with a severe and angry-looking rash, green iodide of mercury, Donovan's solution, and iodide of sodium. Calomel vapor in the treatment of indurated local sores and ulceration of the extremities. DR. DRYSDALE thought that when the use of mercury itself was questioned, the differences between its compounds need not be discussed. He considered potassium iodide the proper remedy in the tertiary stages. DR. LAUDER BRUNTON thought it a question whether mercury is most injurious to the germs of the disease or to the tissues. Potassium iodide is not a germicide, and possibly its action is on the tissues. DR. J. ALTHAUS has found blue ointment, with as much lanoline, excellent, also tannate of mercury internally.—*Provincial Medical Journal*, April 1, 1887.

A SIMPLE METHOD OF PREVENTING ARTERIAL HEMORRHAGE.—DR. MUSCROFT, of Cincinnati, described in the *Lancet-Clinic* of April 2, 1887, the following method of preventing arterial hemorrhage, which was entirely satisfactory in a successful amputation at the hip-joint, and a high amputation of the arm for elephantiasis:

"He proposed to pass a strong pin or needle under the femoral vessels *en masse*, high up in Scarpa's triangle, and then, by winding a cord around the exposed ends of the needle, protected by corks, in a figure-of-eight turn, to secure sufficient pressure to occlude the artery completely. This method of compression before the operation could not possibly do any harm, and if properly applied there could be no danger of hemorrhage. The additional advantage would be secured that there were no tourniquets or bandages to slip when their point of resistance was removed by the disarticulation of the head of the femur, and the apparatus for controlling the hemorrhage was not at all in the way of the operator or his assistants."

As soon as the patient was fully under the influence of the anæsthetic, a needle one-eighth of an inch wide, slightly bent at the point, about the thickness of a dime, and four inches long, was introduced perpendicularly into the front of the thigh, about an inch and a half below Poupart's ligament. The exact point of entrance was one-fourth inch internal to the combined sheaths of the vein, artery, and nerves. The point was pushed beyond the vessels, then turned outward until the needle had passed beyond them; the point was then pushed out through the integument. The needle was then behind the vessels and nerve. A piece of cord was passed under the heel and point of the needle, forming a figure-of-eight ligature. Before the ligature was applied the femoral artery could be felt pulsating strongly, but when it was tightened the pulsation below the needle had ceased entirely.

The compression with the needle and figure-of-eight ligature was entirely successful in preventing any bleeding from the brachial artery. The needle was introduced from before backward, and parallel to the borders of the axilla. The point and heel of the needle were protected, as on the former occasion, by corks.

AMMONIUM PICRONITRICUM.—The following is a formula for the administration of this substance, which has been used in the treatment of malaria:

℞.—Ammonii picronitrici .	gr. 4½ to gr. 24.
Pulv. rad. glycyrrhizæ	gr. 24.
Syrupi glycyrrhizæ .	♏ 24.

M. div. in pil. 30 in num.

It should be observed that the salts of picric acid, when mixed with dry substances, form explosive compounds, and a liquid should always be used in their combinations.—*Therapeutische Monatshefte*, March, 1887.

A METHOD OF PREPARING CARBOLIZED GAUZE.—The following is the method described by ENGLAND in the *Journal of Pharmacy* for April, 1887: This is by far the most important and the most in demand of all the gauzes and enters into medical practice whenever the Lister dressings are employed. It is very apt to deterioration on keeping from the volatilization of its contained carbolic acid, but this can, in a very large measure, be prevented if the finished product be wrapped in paraffin paper. The formula employed is based to a certain extent upon that of Von Brun's (carbolic acid 10 parts, resin 40 parts, castor-oil 8 parts, and alcohol 200 parts), but it varies in containing glycerine in the place of the

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oil, and, in addition, petroleum benzin. The following formula contains ten per cent. in weight of carbolic acid, in the finished product:

Carbolic acid . .	239 gm. (8 oz. av., 188 gr.)
Alcohol . . .	1200 gm. (42 oz. av., 144 gr.)
Glycerine . . .	150 gm. (5 oz. av., 127 gr.)
Resin . . .	300 gm. (10 oz. av., 255 gr.)
Benzin . . .	1400 gm. (49 oz. av., 168 gr.)
Gauze . . .	1700 gm. (59 oz. av., 423 gr.)

Triturate the resin in a mortar with the benzin, add the alcohol, in which has been dissolved the carbolic acid, and then add the glycerine. Lastly, soak the gauze in 3- or 6-yard pieces, in this mixture, kneading well, to secure uniform diffusion; express and hang the gauze on frames to dry. It dries very quickly, after which, fold in rolls and wrap up in paraffin paper. In order to increase the efficiency of the gauze, it has been recommended that the layers of gauze, prior to application, be dipped into a 1 to 40 aqueous solution of carbolic acid.

In this gauze the acid is, of course, the active ingredient. The resin is used to prevent the washing away of the acid by the discharges from the wound, while the glycerine is employed to make the resin less brittle, and help, also, the retention of the acid in a more than ordinarily soluble form. Benzin is used to reduce the cost.

Disinfection of Dwellings and of Inhabited Rooms.—Drs. Guttmann and Merke, of the City Hospital Moabit, in Berlin, have made an investigation as to the relative value of various methods of disinfecting inhabited rooms, and have published the results in a paper in *Virchow's Archiv* of March 2, 1887. The main points kept in view in the inquiry were that a satisfactory method should destroy the vitality of the bacteria, should not injure the house or furniture, should not be dangerous to the health of the person in the house or of the person applying it, should involve the least possible labor in its use, and be as cheap as possible. The bacillus anthrax was taken as the test organism, and was dried in silk fibres and scattered through the room, on rugs, etc. Disinfection was attempted by rubbing the floors, ceilings, and walls with disinfectant fluids and by spraying the same on the rugs, etc. The solutions experimented with were a five per cent. solution of carbolic acid, and solutions of bichloride of mercury of various strengths. Their conclusion is that a solution of bichloride of mercury, 1 to 1000, used as a wash and a spray, is the most certain, the cheapest, and in all respects the best for disinfecting inhabited rooms.—*Sanitary Engineer*, April 9, 1887.

Treatment of Phosphaturia.—Cantani is quoted as prescribing as follows in the *Centralblatt für klinische Medicin* of March 26, 1887:

℞.—Acid. lactic. . . . . ♏ 45.
Aq. fontis . . . . . ʒ 6½.
Aq. menth. piper. . . . ad ʒ 8.—M.

Sig.—Two or three tablespoonfuls in half a glass of soda water every two hours.

Bacteria in Ice.—Frankel, of Berlin, has examined ice for bacteria, and has found them present in considerable numbers. Ice from the water of springs showed bacteria, as did the ice of river water. Bacteria, however, were not found in ice made from distilled water, and ice intended for direct application to wounds and other portions of the organism exposed to direct contagion should be made from distilled water. Ice from ordinary sources of supply may be used to preserve foods, as meats, if the food be thoroughly cooked at high temperature before it is eaten. Of course, when ice is not brought in contact with food, but is packed about vessels, it need not be carefully selected.—*Centralblatt für klinische Medicin*, March 26, 1887.

The Results of Pasteur's Treatment.—Lutaud, of Paris, editor of the *Journal de Médecine*, has written as follows regarding the results of Pasteur's method:

In answering the objections of M. Peter, Vulpian replied at the Institute, on January 24th, and gave the statistical statements which the Institute immediately sent out all over France. He said: "We have inoculated 3000 persons: the death-rate from rabid bites was formerly 160 per 1000. Without M. Pasteur, then, 320 persons would have died in 1886 from hydrophobia; as only 22 died, we have saved 300 lives."

The arithmetic seems correct; but what is no less evident is that, by M. Pasteur's novelty, the number of persons attacked by hydrophobia is suddenly increased to an extraordinary extent. It must be ascertained how many deaths occurred before M. Pasteur. If the number in 1886 is as high as it was before, it follows that the new treatment is without effect.

What was the death-rate before 1885? An eminent professor, Tardieu, found 25 deaths annually during a period of thirteen years. Professor Brouardel lately, during a period of twenty-three years, has found 30 cases yearly. Tardieu said that nearly all the departments answered his circular. M. Brouardel states that only two-thirds gave him the information that he required. Admitting this statement, if 30 is the number of deaths for two-thirds of the departments, 45 will be the number for the whole of France.

Now, in 1886, 39 deaths have occurred. Where, then, are the advantages of the new method?

With regard to the terrible charge brought against M. Pasteur by M. Peter of causing paralytic hydrophobia by his inoculations, M. Vulpian says that the disease is not so rare as is generally believed, and M. Brouardel has recalled one instance spoken of by Van Swieten.

Meanwhile, until M. Vulpian's assertions as to the infallibility of M. Pasteur's method are confirmed by new facts, I advise my professional brethren to keep to the old method of cauterizing the wounds. The statistical accounts prove that out of the 25 fatal cases of hydrophobia in 1886, only 3 had been previously cauterized. This neglect arises from the blind faith in M. Pasteur's treatment which is at present so prevalent.

I may add, that nine persons have died during the last two months with strange symptoms of paralysis (paralytic hydrophobia) after having been submitted to the new intensive method. These facts are perfectly conclusive. If M. Pasteur cures hydrophobia, the cure is not a certainty as affirmed by M. Vulpian, and the new intensive method is far from being harmless.—*British Medical Journal*, April 2, 1887.

Formulæ Successfully Used in a Case of Severe Croup.—Lewentaner, of Constantinople, successfully

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treated a case of severe croup in which suffocation was imminent by a large dose of turpentine, as described in THE MEDICAL NEWS of March 12, 1887; he used in addition the following formula in spray, which we take rom the *Centralblatt für klinische Medicin* of March 26, 1887:

℞.—Tinct. eucalypt. glob. . . . ♏ 75.
Acid. carbolic. cryst. . . . gr. 75.
Ol. terebinth. rect. . . . ʒ 2½.
Alcohol . . . . . ad ℥ 10.

The following was given internally:

℞.—Hydrarg. cyanat. . . . gr. ½.
Tinct. aconit. . . . . ♏ 30.
Aq. destillat. . . . . ad ℥ 4.—M.
Sig.—To be taken *during twenty-four hours.*

TURPENTINE IN IMPETIGO.—DR. SAERBS recommends essence of turpentine as a local application in impetigo of the scalp or other hairy part. The preparation should be well rubbed into the skin and the roots of the hair with the fingers. After about five minutes it should be washed off with carbolic soap, and afterward with warm water. Tincture of iodine should be next applied. This treatment should be carried out once or twice a day; it causes slight itching, but is not painful. The author has found it successful where other modes of treatment have failed.—*British Medical Journal*, April 2, 1887.

THE TONIC TREATMENT OF THE HAIR.—DR. FOLEY, of Boston, writes as follows in the *New York Medical Journal* of April 9th, on this subject:

A wineglassful of aromatic spirits of ammonia added to a basinful of water is very cleansing and refreshing. Care should be taken that it does not get into the eyes. The shampoo as given by the barber is too rough and vigorous, and the conglomeration he puts on the head afterward is anything but beneficial. While one performs daily ablutions of the face, hands, and body, the head is generally left out. This should not be; it is as necessary to wash the scalp as any other portion of the body. The hair should be brushed daily. Too much violence must be guarded against. It should be brushed gently in the direction in which it lies. A harsh brush should be used to cleanse the scalp of dust and dandruff, and then the hair-shafts should be smoothed and polished by means of a softer brush. The scalp should receive a roseate glow. This insures quicker circulation in the follicle about the hair-papilla, and hence the growth is invigorated. Hair-tonics have the same effect upon the skin—viz., a stimulating effect upon the skin capillaries. Morning and night, before retiring, is the best time for brushing the hair. Too hard brushing tends to produce dandruff. In brushing, the object is to cleanse it from extraneous materials, such as feathers, dust, dandruff, and concrete sebaceous material, which often oozes out upon the scalp, to make it smooth, and to bring truant hairs into the right place, and set at harmony discordant filaments.

Friction polishes the hair as well as bandoline or ointment. The end we seek in building up a scanty hair crop is a proper amount of blood-supply, through friction and hair-tonics. The appended is an excellent hair-tonic:

℞.—Acid. carbolic . . . . . ʒ ss.
Tr. nucis vom. . . . . ʒ ij.
Tr. cinchonæ rubr. . . . . ℥ j.
Tr. cantharidis . . . . . ʒ ss.
Aq. cologniensis } . āā q. s. ad ℥ iv.—M.
Ol. cocois }

Apply once or twice a day to the scalp by means of a soft sponge. This will prevent the hair from falling out if it does not produce a luxuriant crop.

NEW FORMULÆ FOR HYPODERMATIC INJECTIONS OF SUBSTANCES COMBINED WITH LIQUID VASELINE.—MEUNIER, of Lyons, continues his series of formulæ of combinations with liquid vaseline as follows:

℞.—Eugenol . . . . . 3 parts.
Liquid vaseline . . . 100 parts.—M.
Filter twice.

Eugenol, active principle of essence of cloves, is considered a very powerful microbicide.

℞.—Helenine . . . . . 1 part.
Liquid vaseline . . . . 100 parts.

Triturate together while cold; heat over a water bath until solution occurs; filter through double paper.

Helenine is the active principle of the essence of elecampane root, and is regarded as a microbicide.

The greater number of alkaloids are very soluble in vaseline, but, by adding an intermediate dissolvant, the quantity of alkaloid dissolved can be greatly increased. Injections should be made immediately after their preparation, to avoid precipitation of a portion of the solid.

℞.—Cocaine . . . . . 2 parts.
Liquid vaseline . . . . 100 "

Triturate; heat over a water bath, filter through two papers.

This solution is employed for local anæsthesia upon the skin; in the eye; in the larynx, and about the teeth; its action is more prolonged and sure than that of a watery solution, because of the penetration of the vaseline beneath the skin:

℞.—Chloroform . . . . 20 parts.
Liquid vaseline . . . 80 "

This injection is without pain, and is very useful in sciatica and neuralgia:

℞.—Crystal. aconitine (Duquesnel) gr. $\frac{1}{200}$.
Chloroform . . . . ♏ 15.
Liquid vaseline . . . ʒ 1.

Dissolve the aconitine in chloroform, mix with the vaseline and filter.

The contents of Pravaz's syringe, containing $\frac{1}{100}$ of a grain of aconitine, may be given for intercostal neuralgia:

℞.—Crystallized digitaline . . gr. $\frac{1}{100}$.
Chloroform . . . . ♏ 15.
Liquid vaseline . . . ♏ 75.

Dissolve the digitaline in the chloroform and add the vaseline.

This may be injected for cardiac asystolia, when caffeine and digitalis are not tolerated by the stomach, in doses of sixteen minims:

℞.—Quinine . . . . . gr. 3.
Absolute alcohol . . . gtt. 10 to 15.
Ether . . . . . gtt. 10 to 15.
Liquid vaseline . . . ʒ 5.

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Triturate the quinine in alcohol until completely dissolved, add the ether and then the vaseline, and filter.

Meunier, discussing Bouchard's experiments in producing cataract in the eyes of animals by naphthaline, has injected vaseline into the eyes of sheep and rabbits, a third or a fourth the volume of the eye, with perfect diffusion and no irritation.

He finds that cholesterine is soluble in vaseline in proportion of 1 to 100 at the temperature of the human body. It seems rational to suppose that hepatic calculi may be dissolved by injections of vaseline.

It may be also given in capsules in typhoid fever and diseases of the digestive tract, as it is inoffensive and digestible. Substances intended to disinfect the intestines, as iodoform, thymol, and eucalyptol, can be thus injected easily and harmlessly.

Meunier, however, considers *pure* liquid vaseline the most satisfactory medium for the hypodermatic injection of the remedial agents mentioned.—*Bulletin de Thérapeutique*, February 28, 1887.

Splenectomy for Wandering Spleen.—Dr. W. H. Myers, of Fort Wayne, Indiana, reports the following case in the *Journal of the American Medical Association* of April 2, 1887:

Upon making an examination I discovered that the tumor was then resting on the brim of the pelvis, and extending above the umbilicus. It had suppurated, and three sinuses existed, communicating with the abscess. The discharges were offensive, almost intolerable. The patient was emaciated, had chills with profuse perspiration at night, and great loss of appetite. Her surroundings deterred me from venturing to relieve her by any surgical procedure at her home. By agreement she was brought to Fort Wayne and placed in St. Joseph's Hospital.

The cleansing of the skin over the tumor, and for some distance around, was carried out by washing it with a carbolic acid solution, 1–20, after which stimulants were administered, when she was placed under the influence of ether and removed to the operating table. The line of incision was six inches in length, extending two inches above the umbilicus and made in the *linea alba*. During the progress of the operation the strictest antiseptic precautions were observed. Silk ligatures, previously carbolized, were applied to the bleeding vessels and then cut short; the hemorrhage was thus arrested completely before dividing the peritoneum. The peritoneum was caught up with forceps, and incised with a knife sufficiently to admit the completion of the incision with scissors. This was followed by a free discharge of sero-purulent fluid, received upon the towels and sponges conveniently placed for this purpose. The tumor was now freely exposed, and proved to be a displaced and wandering spleen, indurated, and greatly enlarged, lying in a peritoneal abscess. I succeeded in lifting the spleen from its resting place, the brim of the pelvis, and in securing the pedicle, composed of the vessels and fibrous tissue, much elongated. While the tumor was partially lifted from its bed, I succeeded in transfixing the pedicle with a needle, armed with a double thread of silk, and ligated it in two portions. The pedicle was then cut short and dropped back into the cavity occupied by the spleen; so also were the ligatures. Into the cavity occupied by the spleen carbolized sponges were introduced repeatedly until the hemorrhage was entirely arrested. This was followed by the insertion into the lower angle of the wound of a large size glass drainage-tube, and I proceeded to close the wound with stitches of silk thread, including the peritoneum. After the edges of the wound were carefully approximated, and the surface washed with carbolized water, protective gauze was placed over the line of incision, and over it a layer of carbolized cotton and antiseptic gauze; and over these a firm snug-fitting flannel bandage; over the mouth of the glass tube, carbolized gauze. The spleen weighed seven pounds.

The patient was now removed and placed in bed, wrapped in warm blankets, and bottles of hot water placed about her. The evidence of shock disappeared in a few hours. The after-treatment consisted in the administration of tonics, stimulants, and food, washing out the abscess cavity daily with carbolized water, 1–20, until the removal of the drainage-tube; this occurred on the twelfth day.

On the ninth day the first dressing was removed and union was found to be almost complete; the deep stitches were removed, and the superficial stitches allowed to remain until the fourteenth day.

Her pulse never exceeded 110, and her temperature never exceeded 102°. Her appetite improved rapidly, and her previous bad symptoms disappeared, so that in twenty-one days she was enabled to leave the hospital, and her recovery at the present time is complete.

Operation for Post-nasal Sarcomatous Tumor.—Dr. S. P. Duffield writes as follows in the *American Lancet* of April, 1887, of a visit paid by him to von Wahl, of Dorpat, Russia, an eminent surgeon, who succeeded Bergmann in the professorship of surgery:

"An operation I saw him perform for post-nasal sarcomatous tumor was as follows: Instead of the old-fashioned Mott way of splitting the nose, he made an incision across the nose, following the line of the articulation of the ossa nasi with the os frontis, and then down the right side in the line of the articulation with the maxillaris; breaking through the articulation of the os frontis with chisel and mallet, he turned the nose over upon the cheek and had a good, unobstructed opening through which to work, and with a curette removed the tumor piecemeal, replaced the nose, fastened with sutures, dusted with iodoform, and dressed as usual. Two days after the patient came into the clinic, and the nose looked as natural almost as ever."

Infantile Constipation.—A very successful remedy for this is podophyllin, in small doses; iridin may be combined with it with good effect. Make a tincture of the following:

Podophyllin resin.	gr. viij.
Iridin	gr. v.
Spt. ammon. arom.	℥j.

Digest for several days, and filter.

One or two drops of this may be given at bedtime on a small piece of loaf sugar, or the dose may be combined in mixture along with syrup of orange. This is the dose for a child of one year and under.—*The Chemist and Druggist*, March 19, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

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SATURDAY, APRIL 23, 1887.

ETHER OR CHLOROFORM?

THE *vexata questio* of a suitable anæsthetic continues to be far from a unanimous decision. The increasing employment of ether, and the corresponding disuse of chloroform during several years past, are the result of a conviction that the former is far safer. No attentive observer, however, can fail to see the evidences of a beginning reaction in favor of chloroform. The opinions expressed by members of the New York Academy of Medicine during a recent discussion, a report of which appeared in our last issue, indicate that the superiority of ether is not admitted by some of our New York colleagues as an article of medical faith. It is obvious enough that the facts brought forward by Dr. Gerster are of a character to disturb the confidence of the ether partisan, and will do so unless an erroneous interpretation has been given to the fatal cases.

During this discussion, the belief was expressed that ether owed the immunity from accidents, which had hitherto attended its administration, to the comparatively small number of inhalations formerly practised, and that chloroform had got its evil repute from its indiscriminate use in a vast number of cases. It was, also, intimated that deaths from ether have been increasing with an increasing number of inhalations. In respect to the character of their comparative danger, it appears to be the consensus of opinion that chloroform is more apt to kill during the inhalation, whilst ether induces morbid states of the respiratory organs which prove fatal subsequently.

If the experiences of our New York colleagues are confirmed by general observation, the questions will be—When ether? When chloroform? and the decision will rest on the provisions which can be made use of, to render one or the other safer under the existing conditions. The immediate and remote dangers being known, how can we best avoid their occurrence by modes of practice now available or to be hereafter discovered?

That the condition of anæsthesia as now produced, must inevitably be a condition of danger, can hardly be disputed, since it consists in an entire suspension of the functions of animal life. The way to safety consists in maintaining the organic functions of circulation and respiration, for the failure of one is of necessity fatal to life. That anæsthetic which least endangers these functions, or whose injurious action is most easily obviated, is best, provided that it has no after-effects, which, if slower, are equally fatal.

We do not find in the discussion under consideration an adequate statement of the means to prevent or to remove dangerous indications. That does not appear to have been Dr. Gerster's intention, and in the course of the discussion this subject was only incidentally mentioned. This, however, is an important part of the subject, since the decision of the question may be much influenced by the readiness with which danger-symptoms may be prevented.

"Mixed anæsthesia," as it has been designated with little felicity, has paramount importance in this connection. By this term is meant the suggestion made, originally, by Bernard, and afterward practised and strongly advocated by Nussbaum, that morphine be administered subcutaneously before commencing the inhalation. Of late the combination of morphine and atropine has been advantageously substituted. The good effects of this practice are these:

It facilitates the inhalation by allaying the irritability of the broncho-pulmonary mucous membrane; it prevents that tetanic condition of the muscles, especially those of respiration, called "the stage of rigidity;" it prolongs the insensibility with a less quantity of the anæsthetic; it diminishes the shock of the surgical procedure; it serves to maintain the functions of respiration and circulation; it relieves much of the after-pain, and it prevents the inflammatory reaction which arises after the immediate effects of the anæsthetic are spent.

We know that it has been asserted by the opponents of this practice, that the hypodermatic injection is only an addition to the dangers of the anæsthesia. It may be replied, that any misadventure properly attributed to the injection was due to the careless use of too large a dose—for the amount necessary will rarely exceed $\frac{1}{8}$ of a grain, and often not more than $\frac{1}{12}$ grain of morphine, and $\frac{1}{150}$ grain or even $\frac{1}{200}$ grain of atropine.

To inefficient, negligent, even bad modes of administration, may often be referred the unpleasant

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action, or the fatal result. Inattention to the high density of chloroform vapor, and to the proportion of air necessary to carry on the function of the red globules of the blood, are two common causes of accident from the inhalation of chloroform. Then it is we hear of a mysterious idiosyncrasy—that a few whiffs of vapor caused death because some inexplicable condition existed—when the real truth is that those few "whiffs" consisted of chloroform vapor and that the red globules were suddenly deprived of their oxygen, and the motor ganglia of the heart immediately ceased to functionate. On the other hand, in giving ether, so much air is admitted that the stage of excitement is greatly lengthened, the rigidity becomes extreme, and the respiratory organs are irritated by the prolonged contact of the ether vapor. If ether is properly administered and insensibility is promptly produced, fewer examples of pulmonary inflammation may be expected to occur, if any were ever due to this cause.

As between ether and chloroform, the suddenness with which the latter acts, and still more the character of the action, when it causes danger-symptoms, makes it by comparison far less suitable as a general anæsthetic than the former, and as the untoward effects of ether are much more amenable to treatment by the usual restorative measures, its advantages are still more conspicuous. If, however, the after-results of ether administration are so serious as the recent experience seems to indicate, the choice between them must be decided by other considerations than those of safety. It may, indeed, finally appear that the choice between them is to be determined by the character of the case in which anæsthesia becomes necessary. In that event, the mode of administration will be the chief object of attention. It is surely not flattering to the professional vanity, as it is rather derogatory to the professional humanity, that so many fatal cases are attributable to carelessness, to ignorance, and to mere accident that might have been avoided.

THE TREATMENT OF BACKWARD DISPLACEMENTS OF THE UTERUS.

Amid the animated discussions that have been provoked by the procedures advocated by the bolder surgeons of the present day, for whom the peritoneal cavity has none of those terrors that it once inspired, some minor problems in gynecology have suffered comparative neglect. What gynecologist, what general practitioner, indeed, is there to whom the treatment of backward displacement of the uterus is not a problem presented constantly for solution? And yet it is a problem still unsolved. Shall he use mechanical supports? shall he employ electricity? shall he perform a plastic operation in the vagina? or must he accept the teachings of those who look to laparotomy as the panacea for all the ills that female flesh is heir to?

The inquirer may obtain a variety of answers to these questions in the report of the discussion of a paper by Fränkel, of Breslau, read before the Gynecological Section of the last Congress of Scientists and Physicians in Berlin. Fränkel found that among more than five thousand gynecological cases eighteen per cent. had backward displacements of the uterus, and about seventy per cent. of this number admitted of mechanical treatment; for which purpose, after the uterus has been replaced, he prefers above all others the Thomas pessary, having with it in about eight per cent. of his cases effected a permanent cure; but the treatment was a tedious one, pessaries being used, on an average, one year, and in one case more than two years. This length of time might easily exhaust a physician's patience, and this explains the eagerness with which Alexander's operation for the radical and rapid cure of retroversion was at first adopted, but Fränkel takes occasion to condemn the operation, and his condemnation was endorsed by the majority of the Society.

In the discussion that followed the paper Küstner also recommended the Thomas pessary, while Martin and Veit expressed a decided preference for the Hodge pessary. Sänger spoke strongly in favor of the prophylactic treatment of uterine displacements. He made it a rule, he said, to examine every patient during the first few weeks after confinement, in order to correct any tendency to a retro-deviation, for, in his opinion, these displacements most frequently occurred during the puerperium. Czerny spoke of having sewed the fundus of a uterus to the abdominal wall at the close of an operation for the removal of diseased tubes and ovaries, and Veit related a similar experience, but said that he had little reason to be satisfied with the position of the uterus a year and a half after the operation.

Frank described an operation that he performed in order to dispense with pessaries altogether. The peritoneum was loosened from the uterus and bladder and passed upward in a fold, and was fastened by catgut stitches, which, at the same time, brought the raw anterior surface of the uterus in contact with the denuded surface of the posterior wall of the bladder. Schwarz, on the other hand, recommended the simplest mechanical contrivances, and used, he said, the ordinary Mayer's ring in connection with injections of astringent solutions, while Martin expressed his belief that all treatment of backward displacements of the uterus was unnecessary, unless the displacement was associated with disagreeable symptoms or sterility.

This wide diversity of opinion indicates how unsatisfactory, after all, are the means at our command

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for the treatment of retroversions and flexions of the uterus, but it seems to us that a sound judgment would dictate the exercise of some patience in the application of mechanical means of support, and that operative procedures, often difficult of execution and unsatisfactory, even sometimes dangerous in results, will not find a permanent place among the remedies for this condition.

OSTEOPLASTIC RESECTION OF THE FOOT.

IN THE MEDICAL NEWS for January 29, 1887, we called attention to the operation of resection of the foot and leg, known by the names of Wladimiroff and Mikulicz. One such operation has recently been performed in this country, by FENGER, of Chicago, and is reported in *The Journal of the American Medical Association* for January 29, 1887. Another, as yet unreported, was performed a few weeks ago by HOPKINS, of Philadelphia.

The operation of Hopkins was done for an ulcer involving the entire heel and more. Six months before, a car-wheel had carried away all the tissues down to the bone, leaving an isthmus of skin, an inch and a half wide, on the dorsum of the foot. The operation was modified, according to the suggestion made in our editorial of January 27, by suturing the tendo Achillis to the tissues of the foot, Hopkins choosing for this purpose, the plantar fascia, instead of the periosteum of the scaphoid and cuboid bones. He also sutured the retrenched tendon of the peroneus longus muscle, and the posterior tibial nerve, and pegged the tarsus of the leg bone with sterilized bone dowels. So far, the patient has done very well.

In connection with these two operations we would call attention to an interesting enlargement of the scope of this method, as illustrated by a case reported by GUTSCH, in the *Archiv für klinische Chirurgie*, Bd. xxxiv. Heft 3. The patient, a boy twelve years old, had previously undergone a resection by the method of König, but had had a recurrence of tuberculous degeneration. A month after the former operation Gutsch did another resection by the Wladimiroff-Mikulicz method. The circumstances of the case compelled him to make his incision in the foot pass through the cuboid bone and the three cuneiform bones, while that through the tibia and fibula was situated seven centimetres above the point of the internal malleolus. The result was excellent. The bones consolidated perfectly, and with a properly constructed shoe the patient was able to walk without a cane, and even to indulge in snowball fights with his comrades.

TRUTHFULNESS OF SURGICAL REPORTS.

AN old proverb says that "truth is golden," and this should apply in a special manner to reports of successes and failures in surgical work, for the reason that the prognosis in cases of like character must very largely depend upon what is believed to have been the results under former operations, whether fatal or curative. If we cannot trust the statements of the remarkable successes of well-known operators, we are forced to base our prognosis upon doubtful records.

Exaggerations are certain, sooner or later, to be detected through some want of correspondence with previous statements. Investigators who do not confine their observations to printed records will occasionally trace up a long-believed rumor to its sophistical origin. A few years ago a well-known surgeon visiting this city, stated in the course of conversation that he had twice performed the Cæsarean operation with entire success. Inquiry proved the claim to be groundless, and the medical neighbors of the boaster gave him a low status for veracity. The unwritten records of surgical work contain many such statements, and some have only been set aside many years after they were started.

Fabrications of cases are much less commonly published than orally given. Marvels of history, like that of the Princess of Schwarzenberg, said to have been delivered of a living fœtus some hours after she was burned to death, she being in fact but four months pregnant, are so much beyond belief that few give them any credence in this age. As a rule, we are apt to credit the statements of hospital reports, but even in them we may detect exceptionally some boastful swindle. One was exposed not many years since in a general hospital in the Orient, where the chief was absent from his post for several years. His temporary successor made it appear by his reports that he had removed more than the average number of vesical calculi, and with the best results. But not satisfied with this, the young man deliberately fabricated six cases of ovariotomy, giving the names and ages of the women, with accompanying details. On the return of the chief there was a resumption in the former lower average of lithotomies, and the ovariotomy cases were erased from the hospital record as fabulous.

When a surgical operator makes the impression that the number of his cases and the proportion of his cures are to be received *cum grano salis*, he will soon find his statements discredited when perfectly true, because of the bad name which he has acquired for himself in the past. Men of real merit and large experience, should be content to report only what legitimately belongs to them.

PREGNANCY AND ITS SYNONYMS.

IT certainly is remarkable that the terms used synonymously with pregnancy, as a rule, merely express some one of the more obvious phenomena,

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and not the essential condition. Thus, the Romans, though they had the word *prægnatio*, spoke of *graviditas*, the increased weight being the origin of the term applied to pregnancy; in like manner, the Italians use the word *gravidanza*. The French express not greater weight, but greater size, in the word *grossesse*. The German *Schwangerschaft* gives the idea of carrying, an idea which has evidently come from the *gestatio* of the Romans, the κύησις of the Greeks, the root of the former being *gesto*, and of the latter κύεω, each meaning to carry. "To be with child," is an English expression which evidently corresponds with the Greek ἐν γαστρὶ ἐχούσαις, a circumlocution found in the New Testament.

Turning from these words, so superficial in significance, and indicating merely phenomena, we find that pregnancy in its etymology expresses the essential condition. The derivation of the word clearly signifies reproduction, the root-verb being *gigno*; and this in turn takes us back to the Greek γενναω, from which we have genesis, genus, generic, genitor, etc. But we must go to the Sanscrit to find the origin of the Greek verb in *zan* or *gan*: this common verb appears in our language in the word beget. There is, therefore, not only a more profound, but a more appropriate meaning in the word pregnancy than in any of its substitutes.

In honor of the Queen's jubilee, Sir Donald Smith, member of the Canadian Parliament, and Sir George Stephen, President of the Canadian Pacific Railway, have offered to give $500,000 each for a new hospital at Montreal, to be named, with the permission of her Majesty, the Royal Victoria Hospital. The city is asked to give a site on Mount Royal, adjoining the estate of the late Sir Hugh Allen. The building is to cost $250,000, which would leave an endowment of $750,000. This, it is estimated, would bring in about half the necessary revenue for the maintenance of the 200 patients for whom accommodation is to be provided. The site asked for is ten acres in extent, and is valued at $40,000.

Sir William Jenner has, for the seventh time, been elected President of the Royal College of Physicians of London.

At the Eightieth Annual Commencement of the University of Maryland, held in March last, the degree of M.D., was conferred on ninety graduates.

The Imperial Institute at Tokio, Japan, is said to be the only college in the world which has a professorship of sanitary engineering. The position is filled by an Englishman.

A correspondent of the London *Lancet* "thinks that if the American railway companies could be induced to grant free passes over their lines to foreign medical men attending the International Medical Congress in September, it would result in largely increasing the attendance, and would be an immense boon to many doctors of limited means, who otherwise would be debarred from visiting America." Unfortunately for this suggestion, the issuing of free passes is strictly prohibited by the Inter-State Commerce Act.

REVIEWS.

Clinical Manual for the Study of Medical Cases. Edited by James Finlayson, Professor and Lecturer on Clinical Medicine in the Glasgow Western Infirmary. Second edition, revised and enlarged. 12mo. pp. 683. Philadelphia: Lea Brothers & Co., 1886.

The profession cannot but welcome the second edition of this very valuable work of Finlayson and his collaborators. The size of the book has been increased and the number of illustrations nearly doubled. The manner in which the subject is treated is a most practical one. Symptoms alone and their diagnostic indications form the basis of discussion, there being no description of any *disease*.

The first chapter, by Gairdner, on the physiognomy of disease is of interest and value. In the portion following, written chiefly by Finlayson himself, we notice particularly the important chapter on case-taking and that on temperature, with illustrative charts, and the articles on vomiting and vomited matter, dropsy and its causes, and on the use of electrical instruments in diagnosis, with diagrams of the motor points.

The parts devoted respectively to the study of the organs of special sense, and to the examination of the urine, deserve especial mention. The former is, we think, one of the most useful features of the book; the latter contains among other things the qualitative and quantitative processes for the analysis of urea and sugar, with the best tests for albumen, besides a series of very satisfactory illustrations of the microscopical appearances of urinary sediment. The last chapter, by Gemmell, on the physical examination of the chest and abdomen, is by no means the least important. Among the numerous illustrations which it contains are a series of sphygmographic tracings of different pulse types and a set of diagrams representing the rhythm of the cardiac murmurs. The text explains clearly and thoroughly the methods of examination and the conclusions to be drawn from the physical signs.

A bibliography of works bearing upon the subject is appended to nearly every chapter, and a good index ends the volume.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, April 5, 1887.

The President, C. L. Dana, M.D., in the Chair.

Dr. W. R. Birdsall and Dr. R. F. Weir presented a

REPORT OF A CASE OF SARCOMA OF THE BRAIN, OCCIPITAL LOBE, CAUSING HEMIANOPSIA, REMOVED BY OPERATION.

(See The Medical News for April 16, page 421.)

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DR. GRAEME M. HAMMOND presented the following

REPORT OF A CASE OF CYST OF THE BRAIN, WITH OPERATION.

The patient, a married woman, complained of a severe pain an inch above the right ear, and had left hemiplegia. At the time her symptoms began she was about twenty-nine years of age; she had had four children; during the progress of her disease she had a fifth child. All were strong and well. Her sickness lasted about two years and a half. It commenced by sudden loss of consciousness, and convulsions limited to the left side. The left side of the face became, and remained, paralyzed. About a year later she noticed gradual loss of power in the left arm; things dropped from the hand. At the end of another year the left arm was completely paralyzed. She then noticed increasing weakness in the left leg. When Dr. Hammond first saw her she was able to stand and walk slowly. While the paralysis was extending she had four or five epileptic seizures. Confined to the left side, headache developed about the time the legs became affected, grew more constant, and was described as agonizing.

She denied syphilis. Physical examination showed loss of motion on the left side of the face, tongue, and soft velum; of the left arm, and partial loss of motion in the left leg. There was no disturbance of sensibility of any kind. The reflexes were exaggerated on both sides. Sight, hearing, smell, and taste were normal. Choked disk on both sides was observed at a subsequent examination.

Under treatment, the headache was controlled to a considerable extent. Dr. Hammond's diagnosis was probable cerebral tumor involving the cortical or subcortical substance of the motor centres. An operation was refused. The patient grew worse until the 20th of March, 1887, when her husband asked that the operation be performed. Dr. Spitzka then saw the patient with him, and made two examinations. He coincided in the diagnosis. The operation was performed in the hospital March 30th; Dr. M. Josiah Roberts assisted at the operation, removing the portion of skull by his electro-osteotome. Four buttons were removed by the electro-trephine. These were connected by straight lines made with the circular saw. The diameter of the opening was over two inches. A crucial incision was made through the dura. A hypodermatic needle was introduced in different directions, but no fluid was withdrawn. The dura was closed, a drainage tube was introduced, the skin flaps were sewed up. The patient was put to bed. She lived only twenty-one hours, remaining unconscious after the operation. Prior to the operation she had become completely paralyzed in the left lower limb, she had delusions and hallucinations, she talked incoherently, bedsores developed.

The autopsy showed little hernial protrusion at the wound; the cortical substance here was thin. Incision through the motor region revealed three cysts in a line deep in the white substance. The fluid in the cysts had been only partially examined; it was serum, and contained broken-down brain substance. The cysts were close together, and in a position to affect the face, arm, and leg centres. He could not explain why the syringe failed to bring forth fluid, unless it was that the cysts were too deeply situated or the needle passed between them. He added to the clinical history that the head was drawn to the right side the last three days of life.

DR. E. C. SEGUIN said he was partly responsible for the operation in the case reported by Drs. Birdsall and Wier, but it seemed that the patient would not live more than two or three months without it. He expected to find a large tumor, but was somewhat surprised to see it encapsulated and non-parenchymatous. During the early history of the case the symptoms pointed to destruction of brain tissue. He asked Dr. Hammond whether the sensory or motor symptoms determined the seat of his operation.

DR. HAMMOND replied that the headache corresponded to the centres for the motor symptoms, and the seat of the operation.

DR. SEGUIN added that the seat of the pain would be a very uncertain indication for the seat of the operation. In some cases of cerebellar tumor, for instance, the pain had been mostly frontal.

DR. E. C. SPITZKA, referring to the case reported by Drs. Birdsall and Wier, said that an artery, large enough to cause fatal hemorrhage, entered the gray and white substance of the right occipital lobe. It had been overlooked in many text-books.

DR. ROBERTS explained how the circular saw could be used without injury to the brain, and the operation of the electro-osteotome.

DR. STARR suggested the desirability of an analysis of reported cases of cerebral tumors for the purpose of determining their rapidity of growth and size.

DR. R. L. PARSONS read a paper entitled

NOMENCLATURE IN PSYCHIATRY. MONOMANIA OR OLIGOMANIA, WHICH? PARONOIA, WHAT?

An examination of the reports of fifty-one asylums for the insane, taken at random, showed that of the whole number of patients enumerated, less than two per cent. were classified as cases of monomania, while in twenty-four of these reports the term did not appear. But, however much systematic writers on the subject of insanity deprecated the use of the term monomania, they rarely succeeded. There are manifestations of insanity which are neither melancholia nor dementia, but which differ so much from mania that another designation is required for them, and the objectionable term monomania is the only one generally employed. Dr. Parsons thought a suitable substitute could be found. Paranoia had been used to a considerable extent, but if the meaning of the term monomania is too narrow for the purpose required, that of paranoia is too broad. In conclusion, then, with the assumption that monomania, as defined and explained by certain writers on psychiatry, designates phases of insanity of sufficient importance and well enough differentiated to require a place in the general classification of mental diseases; and with the further assumption that the reasons adduced in this paper are sufficient to justify the substitution of the term oligomania for monomania, it only remains to apply the proper meaning of the latter term to the former, to wit, a form of insanity which, although potentially affecting all the mental faculties and operations, apparently involves only a part, as the intellect, the emotions, or the will, or certain manifestations only of a faculty of the mind; which originates in the intel-

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lectual faculties rather than in the feelings; and the manifestations of which are well defined, persistent, dominant, and systematic in character.

CORRESPONDENCE.

THE PAY OF ARMY AND NAVY SURGEONS.

To the Editor of THE MEDICAL NEWS,

SIR: A comparison of the pay of the medical officers of the army and navy, which appears in one of your recent issues, while in the main correct, so far as direct pay is concerned, conveys an altogether false impression of equality of compensation of the two branches of the service. Leaving out of consideration the question of "actual" and "relative" rank, the significance of which no one not in a military service can fully comprehend, it is not at all a matter of doubt that the army medical officer receives, at least, one-third more than his naval *confrère*, if not in actual cash, in its equivalent.

The writer of the above-mentioned comparison fails to make any allusion to the important consideration of "allowances," which, indeed, in the case of naval officers, do not exist, with the one exception of a ration, rated at thirty cents a day, allowed only when at sea. Those of the army officers, however, constitute a large and important item, and relieve them of many of the expenses of bare living, which tax the officers of the navy so heavily. All army officers, including those of the medical department, are allowed quarters at all times, or commutation for them at the rate of twelve dollars per month per room, for from two to five rooms, according to rank (*Army Regulations*, p. 316), and are thus relieved of the burden of rent, that presses so heavily on naval officers, who rarely obtain quarters, and never commutation for them. Of course, the latter are provided with their little shelves on the side of their ships, when they are at sea, but the rent for their families, when they have families, must come out of their own slender purses. When the naval officer is compelled to move under orders, from one station to another, the cost of transportation of all his possessions must be borne by himself; the army officer is allowed from 1000 to 2000 pounds of extra baggage, which is moved for him at the expense of the government. (*Army Regulations*, p. 214.) From the army commissary department, officers of that service can obtain all the necessaries, for themselves and their families, at little above, and, in many cases, below actual cost. (*Army Regulations*, pp. 317, 241.) Coal, for instance, at the uniform rate of three dollars per ton. No such provision is made for naval officers.

On shore duty, and at least half the time of medical officers of the navy is spent on such duty, the pay is reduced, and when on leave or waiting orders, his pay is still further cut down, his expenses continuing the same, while army officers, whatever their duty, receive their pay and allowances, without reduction.

This is not all. Every five years, the pay of army medical officers, of all grades, is increased ten per cent. Passed Assistant Surgeons in the navy, and in that grade from ten to fifteen years are passed, at the present rate of promotion, receive only one increment of pay, at the end of the first five years.

It is true that there are more medical officers in the navy, holding ranks above that of major, than in the army, but of the full surgeons in the navy, only twenty-seven rank above captain—equivalent to lieutenant in the navy—and a further increase in rank does not entitle them to greater compensation, as it does in the army, length of service only brings an increase every five years after the grade of surgeon is reached, for twenty years beyond which no further increment is allowed. With every successive step in rank, the medcal officer of the army receives an increase of pay, upon which his longevity pay is based.

These facts are so well understood outside of the services, that, while it is impossible to supply the natural waste of the medical corps of the navy with properly qualified men, no such difficulty exists in the army, the supply always being in excess of the demand.

P. A. SURGEON.

THE MATERNITY HOSPITAL.

To the Editor of the THE MEDICAL NEWS,

SIR: The Board of Governors of the Maternity Hospital have unanimously determined that the vacancy now existing in the visiting obstetrical staff of the hospital should be filled by a competitive examination.

Dr. Edward L. Duer, Dr. Wm. Goodell, and Dr. W. H. Parish have consented to conduct the examination.

Those desiring the position must apply by letter before the 1st of May to Dr. Edward L. Duer, 1704 Arch Street, Chairman of the Committee, and soon after that date the applicant will be notified of the place where, and time when the examination will be held.

Yours, very truly,

J. V. INGHAM, M.D.,
Chairman of Executive Committee.

734 SOUTH TENTH ST., PHILADELPHIA,
April 18, 1887.

NEWS ITEMS.

PARIS.

(*From our Special Correspondent.*)

ACUTE POISONING BY CARBOLIZED COTTON-WOOL.—In a recent clinical lecture at the Hôpital des Enfants Malades, M. SIMON described an interesting case of acute poisoning by carbolized cotton-wool in a girl patient, aged twenty-two months. On the 6th of January M. Simon was called in consultation to examine a little girl, aged twenty-two months, who had the evening before presented a series of nervous accidents (prostration, vomiting, cold extremities). The patient had been affected with submaxillary adenitis, and tincture of iodine had been applied. The tincture being very much concentrated an ulceration of five to six centimetres in length was the result of its application. The family doctor was now called in, and iodoform gauze and carbolized cotton-wool were applied to the ulceration. The first dressing was made on the 3d of February. The next morning the wound presented a much better appearance, but the general state of the patient left much to be desired. The mouth was dry, tears flowed, and there was evident coryza. The child was very excitable and complained of pain in the head. Temperature 101.8° F., pulse frequent. February 5th

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the child was taken with vomiting, which medication failed to arrest. The face became pale and the extremities cold, while the temperature rose to 103° F., prostration was extreme, and the urine suppressed. The carbolized cotton-wool was abandoned, the patient recovering entirely from the toxic symptoms at the end of thirty-six hours.

Specimens of the urine passed during the attack and which were as black as ink did not give the characteristic blue color when treated with nitric acid and starch, making it evident that the iodine had played no part in the intoxication. According to M. Simon, the elimination of the urine having been arrested at the first moment, the carbolic acid was accumulated in the nervous centres, and afterward came away, on the suppression of the carbolized dressing, in the black urine characteristic of the poison.

Considering the great susceptibility of children to the toxic action of carbolic acid, M. Simon thinks that this medicament should never be used in children under two years of age.

DIASTASIZED WINE.—It is generally admitted in the present day that vegetable diastase considerably aids digestion, and the assimilation of farinaceous substances. Dr. Coutaret first indicated a practical process for extracting the diastase from sprouting barley.

MM. Gruber and Musculus demonstrated the identity of vegetable diastase with the salivary diastase of the superior animals, and proved that the ferments of this diastase acted in a similar manner upon glycogen and upon starch.

In Dr. Durand's diastasized wine the tonic substances (cinchonium and manganese), though their proportion is but slight, produce a most remarkable therapeutical effect.

Dr. Delmis describes the case of a woman who had suffered from dyspepsia for fifteen years. Obstinate constipation was the principal symptom. The use of this diastasized wine was followed by a sensible amelioration in her condition. Constipation entirely disappeared.

The beneficial effects of Dr. Durand's diastasized wine have been seen in many cases of dyspepsia, gastralgia, persistent vomiting, anæmia, prolonged and trying convalescence. The ordinary dose prescribed is a wineglassful after meals.

THE AMERICAN SURGICAL ASSOCIATION will hold its annual meeting at Washington, on May 11th, 12th, 13th, and 14th. The preliminary programme, just issued, announces the following papers:

Dr. F. S. Dennis, on "The Exploration of the Bladder by the Suprapubic Method."

Dr. John H. Packard, on "Suprapubic Cystotomy for other purposes than the Removal of Calculi."

Dr. A. Vanderveer, "To what extent can we classify our cases of Vesical Calculi for operation, with report of cases?"

Dr. J. Collins Warren, on "Resection of the Intestines; with Specimens."

Dr. C. B. Nancrede, on "Should Laparotomy be done for Penetrating Wounds of the Abdomen involving Viscera?"

Dr. T. A. McGraw, on "Laparotomy for Injuries of the Abdominal Viscera."

Dr. C. H. Mastin, on "Hernia; its Treatment, etc."

Dr. J. E. Michael, on "Report of a Case of Ventral Hernia successfully treated by operation; with a suggestion as to the method of operating."

Dr. Samuel W. Gross, on "The Prognosis of Sarcomata of the Breast."

Dr. D. Hayes Agnew, on "The Medico-Legal Aspect of Cranial and Thoracic Wounds (suicidal)."

Dr. L. McLane Tiffany, on "Surgical Diseases of the White and Colored Races compared; preliminary observations."

Dr. B. A. Watson, on "An Experimental Study of the Effects of Puncture of the Heart in cases of Chloroform Narcosis."

Dr. J. Ford Thompson, on "Case of Vaginal Hysterectomy."

Dr. W. F. Westmoreland, on "Fibro-cystic Tumor of the Jaw."

Dr. T. J. Dunott, on "Some Remarks on Hypertrophy of the Tongue, and the History of a Case."

Dr. J. A. Comingor, on "A Case of Varix of the Jugular Vein."

Dr. William A. Byrd, on "Excision of the Ankle-Joint."

Dr. David Prince, on "Wounds; their Aseptic and Antiseptic Management."

Dr. J. Ewing Mears, on "The Study of the Methods of Operation Practised, and of the Results Obtained in the Treatment of Cleft of the Hard and Soft Palate, Illustrated by a Record of Fifty Cases."

THE SOUTH CAROLINA MEDICAL ASSOCIATION held its thirty-seventh annual meeting at Aiken, on the 12th and 13th of April, under the presidency of Dr. Cornelius Kollock, of Cheraw. A number of interesting papers were read, and the Society recommended the establishment of a State Medical Examining Board, the members of which should be appointed by the Governor, from nominees presented by the South Carolina Medical Association.

The following officers were elected for the ensuing year:

President—T. Grange Simons, M.D., of Charleston.

Vice-Presidents—James Evans, M.D., of Florence; Thomas Legare, M.D., of Charleston; and D. S. Pope, M.D., of Columbia.

Secretary—W. P. Porcher, M.D., of Charleston.

Treasurer—H. W. De Saussure, Jr., M.D., of Charleston.

The next meeting will be held at Columbia, on the second Wednesday in April, 1888.

MEDICAL DEPARTMENT OF WESTERN RESERVE UNIVERSITY.—A very elegant and complete new building for the Medical Department of Western Reserve University, in Cleveland, Ohio, has been completed, and was formally dedicated on the evening of March 8, 1887. The entire cost, about $175,000, was the donation of Mr. John L. Woods, a wealthy and liberal citizen of that city.—*Maryland Med. Journal*, April 2, 1887.

MALPRACTICE SUIT FOR SKIN GRAFTING.—A case has been recently decided in Atlanta, Ga., which offers

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some points of interest. Dr. Henry Wile, of that city, proposed to a boy of thirteen years old to submit to the removal of some small skin grafts from his arm to be placed upon an extensive ulcerated surface on the head of his cousin, a little girl somewhat younger, whom he accompanied to Dr. Wile's office. The boy readily consented, and minute grafts were excised without causing him any inconvenience. The father of the boy subsequently swore out a warrant against Dr. Wile, charging him with assault and battery. Upon trial Dr. Wile was promptly acquitted.—*Maryland Med. Journal*, April 2, 1887.

Smallpox and Rags.—Two cases of smallpox were lately reported from Huntington, among employés of the Chester Paper Company. An investigation of the circumstances by the Secretary of the State Board of Health, showed that rags were the probable medium of contagion, but whether domestic or foreign rags, it was impossible to determine definitely. A portion of the domestic rags were from New York, where smallpox has been prevalent of late, and the probability seemed to Dr. Abbott to be in favor of these rags as being the medium of contagion.—*Boston Med. and Surg. Journal*, April 14, 1887.

Professor Adam Politzer.—The old pupils and friends of Professor Adam Politzer have arranged to present him with his portrait by an eminent artist of Vienna as a token of appreciation of the great service he has rendered to aural surgery during the twenty-five years he has been teaching in the University of Vienna. The presentation will take place at Easter, at the meeting of the Otological Association, at Vienna.

Efficiency of Filters.—An interesting paper was recently read by Dr. Plagge, of Berlin, on the relative efficiency of the different forms of filters in removing bacteria from water, in the Public Health Section of the German Association of Naturalists and Physicians. The experiments were made with water from the River Spree.

The results from Bischoff's spongy iron method were disappointing, from 18,000 to 24,000 bacteria remaining in the filtrate of water which contained 38,000 per cubic centimetre previous to filtering.

Carbon filters proved entirely inoperative.

Sand filters were found to be utterly worthless.

Filters of compressed cellulose were not satisfactory.

The earthenware filters, on Pasteur's principle, gave, in nearly every instance, a filtrate practically free from germs.

Asbestos filters gave an apparently free filtrate, but germs developed later on.

His experiments point in the desirability of using filtered water soon after it is filtered.—*Sanitary News*, April 9, 1887.

Vitiation of the Atmosphere by Gas and Kerosene Stoves.—Dr. D. F. Lincoln, of Savannah, Ga., writes to the *Boston Medical and Surgical Journal*, of March 31, 1887, as follows upon this subject:

"Occupying, for a part of the day, a small room, containing 1100 cubic feet of air, I introduced a small kerosene stove for warmth. The heat yielded was sufficient to raise the temperature of the room about eighteen degrees, which served my purpose sufficiently well. I had to stand some odor; but otherwise, I did not experience any personal discomfort from the peculiar atmosphere. One evening, however, I saw that the reading-lamp was dim; the flame had shrunk to one-half its usual size; thinking that the housekeeper had neglected it, I carried it into the entry, but was surprised to find it burning brightly. Placed in the room, it again burnt low; opening the window relieved the difficulty. The same thing occurred on another evening, when, having with me Wolpert's air-testing apparatus, I found that the amount of carbonic acid in the air had reached sixty-seven parts per ten thousand, the normal amount being three or four parts.

"This numerical statement is only a fair approximation to the truth; but may be regarded as near enough to be of practical importance. It is not at all surprising that such an effect is produced by a pair of burners, each four inches long, generating as much CO_2 as eight or ten common lamps. In a well-built house with tight doors the effect might be doubled."

Schedule of Study Advised in the Berlin University.—The Faculty of Medicine in Berlin has issued a schedule of studies for its students, in which the latter are strongly advised to follow courses in meteorology, mineralogy, geology, anthropology, psychology, and logic. The plan, of course, is not obligatory; but while the Faculty uses no compulsion upon its students in this matter, it holds itself competent to give them good advice.

Prizes for Essays Regarding the Effects of the Use of Tobacco.—The French Society for the Suppression of the Abuse of Tobacco, offers the following prizes, competition for which will remain open until 1888:

A prize of 600 francs for the best essay upon the cachexia caused by nicotine; its symptoms, cause, effects, proven by at least eight clinical observations made in either hospital, private, or military practice.

A prize of 1000 francs upon the effects of tobacco upon men of letters, and its influence upon the development of French literature.

A prize of books worth 200 francs and a medal are offered to any medical man for the best description of four typical cases of affections exclusively attributable to the abuse of tobacco. Communications may be in French, German, English, Italian, or Spanish.

Education of Women in Germany.—Of late the Prussian Minister of Education has had several applications made to him to admit women as students at the universities. His reply is, that women are not to be admitted as regular students at any Prussian university, nor at any of the medical schools.—*Nature*, March 18, 1887.

Acuteness of the Sense of Smell.—Messrs. Nicholls and Bailey recently contributed to *Nature* the results of a series of observations made by them to test the acuteness of smell in the different sexes and in different individuals. The sense of smell in the male was found to be more acute, on the average, than in the female sex. In some individuals it was so keen as to detect one part of prussic acid in two million parts of water. Several

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substances were experimented with, and the following is a summary of the results, the figures indicating the average limit of delicacy of perception: Cloves: males, 1 in 88,128; females, 1 in 50,667. Nitrate of amyl: males, 1 in 783,370; females, 1 in 311,330. Extract of garlic: males, 1 in 57,927; females, 1 in 43,900. Bromine: males, 1 in 49,254; females, 1 in 16,244. Prussic acid: males, 1 in 112,000; females, 1 in 18,000.—*Science*, March 25, 1887.

THE TENNESSEE STATE MEDICAL SOCIETY held its 54th Annual Meeting at Nashville on the 13th, 14th, and 15th inst. The following officers were elected for the ensuing year:

President.—P. D. Sims, M.D., of Chattanooga.

Vice-Presidents.—Drs. J. M. Masters, of Knoxville; T. J. Happel, of Newton; and Richard Douglas, of Nashville.

Secretary.—Ambrose Morrison, M.D., of Nashville.

Treasurer.—Richard Cheatham, M.D., of Nashville.

FATALITY OF THE SWORD AS A WEAPON.—Lord Lytton need not have restricted his celebrated aphorism regarding the comparative might of the pen and the sword as he did. Even outside "the rule of men entirely great," the sword has become, in these latter days, quite a feeble and useless thing. Colonel Paul Methuen stated recently, in the course of an address which he gave at Toynbe Hall, in London, that in the Franco-German war, only six Germans owed their death to the sword, and that the total number wounded with this weapon, with which the Romans conquered the world, was only two hundred and twelve. But all this is saying nothing about the rifle, the revolver, or even the toy-pistol. The average boy finds the latter weapon more effective, and infinitely easier to wield, than the pen; while the daily records of the press show that a considerable portion of the community put their trust, in times of storm and stress, upon the seven-shooter, rather than upon the stylographic pen.—*Boston Med. and Surg. Journal*, April 14, 1887.

OBITUARY RECORD.—Died, at Chicago, on April 18th, JAMES STEWART JEWELL, M.D., a distinguished writer on nervous and mental diseases. Dr. Jewell had been in poor health for a considerable time, and although not so ill as to be compelled to relinquish his practice entirely, his condition was such as to cause grave apprehensions among his friends. He began to break down in health about five years ago, and a complication of disorders set in which he was never able to overcome. Dr. Jewell was born Sept. 8, 1837, at Galena, Ill. He was graduated at the Chicago Medical College in 1860, and two years later he settled in Chicago, where he remained in active practice till the time of his death. From 1864 to 1869 he was Professor of Anatomy in the Chicago college, and since 1872 has held the chair of Nervous and Mental Diseases. In 1874 he started the *Journal of Nervous and Mental Diseases*, the columns of which were devoted to the discussion of these disorders.

———At Providence, on April 17, EDWARD T. CASWELL, M.D., in the fifty-fourth year of his age. Dr. Caswell was the son of the Rev. Alexis Caswell, D.D. formerly President of Brown University. He received a liberal education at the Brown University, and was graduated in medicine at the Jefferson Medical College, Philadelphia, in 1859. After a few years of study in Europe, he settled in practice at Providence, where he soon won a high professional position. He made a number of valuable contributions to medical literature, and in 1866 translated Semeleder on *Laryngoscopy and Rhinoscopy*. He was Surgeon to the Rhode Island Hospital, and from time to time has occupied many positions of professional honor.

NOTES AND QUERIES.

CASTRATION OF CRIMINALS.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of March 26, page 363, I read with interest the News Item "Castration of Criminals." It is an epitome of a paper which I read before the Maine Medical Association, June 11, 1878—"The Eradication of Syphilis and Crime by the Extirpation, in that class, of the Procreative Power." The paper was widely commented upon at that time, and I supposed the suggestions entirely new. I subsequently learned that an article of similar import had appeared in *The Medical Times and Gazette* of May 25, 1872, in which corresponding "proposals" were cited as far back as 1731. So the idea is ripening, and I have no doubt that in future crime will meet, in this form, its most powerful suppressor. This method of treating criminals would not only exert an incalculable moral influence, but eradicate much of that incurable disease which, under the present system, is propagated and transmitted.

Yours, most respectfully,
GEORGE F. FRENCH.

MINNEAPOLIS, April 12, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 12 TO APRIL 18, 1887.

RICHARD, CHAS., *Captain and Assistant Surgeon.*—Granted two months leave of absence on surgeon's certificate of disability.—*S. O. 82, A. G. O.*, April 9, 1887.

KANE, JOHN J., *Captain and Assistant Surgeon.*—Resigned April 13, 1887.—*S. O. 85, A. G. O.*, April 13, 1887.

FREEMAN, V. WALKER, *First Lieutenant and Assistant Surgeon.*—Ordered from Fort McIntosh, Texas, to Post of San Antonio, Texas.—*S. O. 45, Department of Texas*, April 11, 1887.

APPOINTMENTS.

WOODRUFF, CHARLES E.—To be Assistant Surgeon with the rank of First Lieutenant, to date from April 14, 1887.

CABELL, JULIAN M.—To be Assistant Surgeon with the rank of First Lieutenant, to date from April 14, 1887.

THE ARMY MEDICAL BOARD, New York City, New York, is dissolved.—*S. O. 82, A. G. O.*, April 9, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 16, 1887.

GRIFFITHS, S. H., *Passed Assistant Surgeon.*—Detached from the U. S. S. "Lancaster," and waiting orders.

HIBBETT, C. T., *Passed Assistant Surgeon.*—Detached from duty on Iron Clads, City Point, Va., and waiting orders.

MARSTELLER, E. H., *Passed Assistant Surgeon.*—Ordered to duty on Iron Clads, City Point, Va., the 20th instant.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, APRIL 30, 1887. No. 18.

ORIGINAL LECTURES.

CARDIAC LESIONS FROM EXCESSIVE MUSCULAR EXERTION.

An Address delivered before the Alumni Association of the Medical College of Ohio, March 8, 1887.

BY WILLIAM H. KELLY, M.D.,
OF COVINGTON, KY.

IN 1865, in the Croonian Lectures, Dr. Peacock, of London, first called attention to the cardiac lesions dependent upon severe and protracted muscular exertion. His observations were made among the miners of Cornwall, and convinced him that the cardiac dilatation and hypertrophy so common among such workmen were dependent upon two factors: the muscular strain and the impure air in the mining shaft.

Shortly after the civil war in our own country, Da Costa, after a large experience in the hospital practice of that time, called attention to what he termed "irritable heart." In some of these cases hypertrophy, and in rare cases dilatation, was found. As a rule, the symptoms were subjective, rather than objective. Those most subjective to this trouble were soldiers who, being somewhat out of health, underwent long and severe marches, hard fighting, with the accompanying mental anxiety, protracted sieges, building fortifications, etc.

After the Franco-Prussian war of 1870–71, Frăntzel was able to confirm Da Costa's observations, and in addition to the causes above mentioned, laid special stress on the pressure on the thorax of the uniform and other military accoutrements. Quain, Fothergill, Morgan, Flint, Seitz, Leyden, and others have drawn attention to the causation of cardiac lesions by excessive muscular effort. The literature of this subject is fairly developed, but as a clinical feature it has not yet obtained the general attention the subject demands. Many cases, affected with obscure and indistinct cardiac symptoms, took origin in this way, and cannot be relieved unless the treatment is conducted with this view in mind.

In 1871 Dr. Clifford Allbutt published a paper, "The Effect of Overwork and Strain on the Heart and Great Bloodvessels," giving a personal experience during an Alpine pedestrian tour. It was in the afternoon, the morning having been spent in mountain climbing, when he determined to reach a still higher peak than the one on which he then stood. During the ascent, which was very difficult and laborious, he suddenly became conscious of "a strange and peculiar *besoin de respirer*, accompanied by a very distressing sense of distention and pulsation in the epigastrium." Placing his hand over the cardiac region, he felt a labored, diffused beat over the epigastrium. Ceasing further attempts at ascending the mountain, and remaining quiet, these unpleasant symptoms disappeared, but another attempt to continue the ascent caused a return of the symptoms. As soon as he reached level ground he was perfectly easy, and felt none of the symptoms above mentioned. This continued until the next morning about three o'clock, when he was awakened by a recurrence of the symptoms. These uncomfortable sensations finally disappeared, to return no more. Such is a brief clinical history of a case of the affection under discussion by an accurate and skilled clinician. It is true, we lack the results of a physical examination, but these would probably have been almost negative, serving only to exclude any chronic organic change; possibly dilatation might have been demonstrated.

Dr. Brunson, of New York, quoted by Fothergill, had a similar experience during a pedestrian tour in Tyrol, and by questioning the guides found that such occurrences among tourists were not infrequent, and usually occurred when the individuals were out of sorts, or had undergone severe and long sustained efforts. When these attacks occurred, the victim being on lofty peaks or dangerous passes, the guides were compelled to carry him down as best they could.

Such is a brief reference to the literature of the subject of this paper. As yet the lesion has no universal cognomen: cardiac overexertion (Seitz), heart strain (Allbutt), muscular subparalysis of the heart (Fothergill), irritable heart (Da Costa).

This paper is based upon two cases believed to be cardiac lesions dependent upon excessive muscular effort; one case seen in the Vienna General Hospital, and the other in private practice. Full notes of the history and physical examination were taken, but unfortunately have been misplaced, and this report is from notes taken at the lecture.

Patient, æt. nineteen, was an apprentice to a wagon-maker, and was compelled to work diligently from 4 A. M. to 9 P. M.; strongly built, with good muscular development. Eight months ago had a slight attack of sickness, lasting only a few days, but from patient's account it was impossible to form a definite opinion as to its nature. Close questioning seemed to exclude the probability of its having been rheumatism. Perfectly well until six days ago, when, engaged in pushing a wagon out of the shop, he felt an acute pain at a point, according to the patient's statement, corresponding to the fourth intercostal space, and outside of the left mammillary line; also marked dyspnœa and palpitation. At the time of examination all these symptoms, except the pain, have disappeared, and this is very slight, except during exertion. Evening temperature, 37.6°; respiration 18; pulse 70, regular, and fairly strong. At this time the patient has been in bed for five days. Urine normal.

Physical examination gave very interesting results. Inspection showed the heart beat diffused over the fourth and fifth intercostal spaces and under the nipple. Palpation showed it to be weak and flapping. On tapping over the cardiac region with the tips of the finger sev-

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eral times, the area of cardiac dulness could be changed. At first this line of dulness extended from the third rib to the sixth rib below, and from the left mammillary line to the right parasternal line. By striking the chest wall over the heart with the finger tips, the upper and right borders of the cardiac dulness became normal, but the lower and left lines remained as above mentioned. In a few minutes the area of dulness became as before. Auscultation gave no demonstration of murmurs; the sounds were weak and flapping.

The lungs were normal; the liver and spleen were somewhat enlarged. No œdema or anasarca.

As I left Vienna shortly after this, I was unable to follow the case, and hence do not know the final issue. Dr. Heitler, Prof. Drasche's assistant, who showed the case to us, told us that such cases were not infrequent, and that the majority of these cases, under proper management, recovered perfectly, with no permanent cardiac lesion. The treatment in this case consisted in rest in bed, concentrated and nutritious food, with infusion of convallaria.

My own case was seen last October, and I have had it under observation since that time.

October 25, about 6 P. M., I was called to see J. S., laborer, aged eighteen, who had been sick only a few hours; stout and well developed. During childhood had the usual children's diseases; considered himself perfectly well until the commencement of the attack in which I saw him. He was addicted to the excessive use of both tobacco and liquor. He had been engaged for some time in digging trenches, and in loosening and throwing out the dirt he was compelled to subject himself to violent muscular exertion. That afternoon, while thus engaged, he suddenly felt a sharp pain in the cardiac region, accompanied by distressing dyspnœa and palpitation. He also felt faint, and was scarcely able to get out of the trench. He was finally taken home, and about two hours after I first saw him. I found him in bed, propped up with pillows, face somewhat cyanotic, and the breathing slightly labored and increased in rapidity. Temperature 99°, respiration 24, pulse 108, weak, compressible, and irregular. The sensation imparted to the finger by the pulse reminded one of the flight of birds as they endeavor to lead an intruder from their nests. Moving along evenly for a few seconds, then apparently falling or fluttering along, then again the even, regular flight. In this case the pulse for several beats would be regular, then the irregular laboring effort, and again the regular beat. With the hand over the heart this was even more distinct.

Physical examination showed lungs normal. Area of cardiac dulness extending above to fourth intercostal space, to right parasternal line, below to sixth rib and to left mammillary line. Apex beat diffused, but strongest in sixth intercostal space below the nipple. Auscultation showed no murmurs; heart sounds not perfectly clear; somewhat muffled and flapping.

Liver enlarged, but I could not demonstrate any splenic enlargement. Urine passed the next morning examined and found apparently normal. I saw him again the next morning, and his condition was about the same; the pulse had decreased in frequency, 96, but was still irregular and weak. His condition remained about the same for eight days before any decided improvement occurred. The dyspnœa disappeared, and the cardiac action was slower, 84, stronger, and more regular; the cardiac pain disappeared on the fourth day. His sleep, which had been disturbed by the irregular heart action, now became sound and refreshing. Area of heart dulness still enlarged. He was kept in bed until the twenty-first day, when he was allowed to set up for awhile; then, by gradual increase in the amount of exercise, he was at last allowed to go out. At this time, thirty days after the attack, the area of dulness was almost normal; still extending a little too much to the left. The apex beat was localized and strong. Since that I have examined his heart several times and have found about the same conditions.

At my first visit I ordered as nearly as possible absolute rest in bed, milk, and underdone beef and mutton, no tea, no coffee, and absolute quiet in the room; in addition to this, cit. caffein and fl. ext. coca, every four hours. His digestion was good, and there were no gastric disturbances of any kind. He had some bronchitis, but it needed no treatment, and the only indication was to aid the exhausted and laboring heart.

On the twelfth day iron and digitalis were ordered for him, and this combination he continued to take for a month. He was directed to give up all manual labor, and to avoid any violent muscular effort. He obtained a position as a clerk, and has so far had no return of the old symptoms. He has decided to go to Alabama to settle, but does not expect to do any heavy work, so that the probability is that there will be no excessive muscular effort to impair the present integrity of his heart.

Such is a brief clinical history of a case that to me was very interesting. Previous to seeing the first case I had paid no attention to the subject; in fact, had never heard of it except as a clinical curiosity. What was my diagnosis? "Dilatation of the heart from muscular exertion." Voltaire says "Only the charlatan is always certain," so I do not claim an absolutely positive diagnosis, but post-mortem examinations of cases presenting similar clinical aspects have demonstrated the lesion claimed.

Thompson reports the case of a man, aged twenty-eight, who, after raising a heavy burden, was taken with symptoms of heart-failure; he gradually grew worse, and after fourteen days died. Post-mortem examination showed a dilated heart with thin yielding walls, but no valvular disease. From the present condition of my patient's heart, as shown by physical examination, I am inclined to believe that a slight compensatory hypertrophy has taken place.

To propel properly the blood through the body the heart must act with force enough to overcome all resistance to the blood flow. Many arteries are crossed by muscles or tendons, or lie between two planes of muscular tissue. When these muscles are contracted the lumen of the bloodvessels is diminished, and the blood-pressure between the heart and the constriction is increased. To overcome this the heart must contract with increased power and energy. In violent muscular effort, especially when the muscles of the upper body are in action, we hold the breath in order to give them a firmer point of support and increase the efficiency of the effort. The temporary cessation of respiration stops the pulmonary circulation; this acting through the right heart stops the venous circulation,

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and thus in the capillaries and arterioles directly opposes the propulsive power of the heart. During the straining the nerve-centres are supplied with imperfectly oxygenated blood, the vasomotor nerves are irritated, and thus blood-pressure is increased. Violent muscular action produces dyspnœa and increased heart-action, dependent upon the inability of the heart to overcome the increased resistance, and force the blood into the arterioles; the heart laboring to overcome the obstacle receives into its cavities more blood than it can force out, and then as evidence of failing heart's action the dyspnœa and palpitation appear. By regular and gradual exercise the heart accustoms itself to this increased resistance, and overcomes it without disturbance. Such is the process of "training," and to persons who have undergone this, feats of effort and endurance, impossible to the untrained, become easy. In many cases this training produces an evident increase in the size and capacity of the heart. Eclipse, the noted race-horse, had an unusually large heart. If this training be too severe, the heart is over-strained, and unable to do the required work; the individual is said to be broken-winded. In such cases even slight exertion produces dyspnœa and irregular heart action; this condition may be permanent, or, under proper management, only temporary.

Persons engaged in severe physical labor in constrained and awkward positions—coal-miners, for example—are especially prone to cardiac changes. The hands and arms are, of course, used mostly, and to increase the efficiency of the effort, the muscles of the entire body, especially the trunk, are called into action, thus affording the muscles of the arm a fixed point of support, and increasing their power. In rowing the feet are firmly fixed, and then the muscles of the arm and trunk are exerted to make the stroke of the oar. As before stated, in addition to the resistance of the muscular action to the blood-current comes increased resistance from holding the breath, and thus impeding the pulmonary circulation. We are all familiar with the so-called "striker's" heart; in these cases, by the excessive muscular effort in hammering the heated metal, and in the workman's endeavor to do as much as possible in the limited time during which the metal is hot enough to be worked, increased work is thrown upon the heart, and at the end of the shift the workmen are found in a state of intense vascular excitement, dyspnœa, and excited cardiac action. Eventually, in a large number of these cases, hypertrophy of the heart occurs, and for the time being this enables the heart to overcome the increased resistance. The aortic valves, however, become affected from the force with which they are closed by the excessive intravascular pressure, increased as it is both by the cardiac hypertrophy and the atheromatous changes in the aorta, and thus serious cardiac lesions are produced.

Persons engaged in violent gymnastics or athletic sport often suffer with extreme dyspnœa and palpitation. This may disappear entirely, or may return whenever the exercise is attempted. On entirely ceasing the violent muscular exercise no further symptoms follow, but the workman, compelled, in order to be self-supporting, to continue his work, prolongs the action of the efficient cause, and finally becomes a victim of serious cardiac disease.

Among mountain-tourists, most of whom at home lead lives comparatively free from active muscular exercise, heart strain might be expected to occur frequently. They seem to think that the more violent exercise they take the more benefit they will derive from their summer outing. In their rivalry to make the highest and most dangerous ascents they undergo violent and prolonged muscular efforts, necessarily producing intense physical exhaustion; and it is not strange that in some of these cases the heart must become unable to meet the increased demands upon it. Involved in the general muscular exhaustion, dilatation may occur, or, more often, dyspnœa, cardiac distress, and palpitation betray the failing heart.

So far we have discussed the question as relating to the heart which was assumed to be of normal nervous, and muscular power. We must now take up those cases in which, while there is normal muscular power, the heart lacks the proper nervous stimulus, and without which it cannot functionate properly. Muscular tissue, in order to retain its tonicity and elasticity, these being necessary to its proper action, must be supplied with active and abundant nerve force. Lacking this, the muscle acts slowly and laboriously, and is easily wearied and exhausted. The wearied heart muscle shows itself in palpitation and dyspnœa. Having lost its tonicity and elasticity, it may be dilated by the increased blood-pressure; or, what is more usually the case, cardiac distress and dyspnœa; the so-called cardiac asthma is an evidence of the strain to which the heart is subjected.

The causes of this defective nerve-supply are such as depress the general nervous strength: anxiety, grief, late hours, dissipation, severe and prolonged mental labor, the abuse of tea, coffee, alcohol, previous sickness. Impure air also indirectly affects the integrity of the heart. By forcing serum charged with carbonic acid through a frog's heart Cyon caused stoppage of the pulsation; within a short time after the carbonic acid gas was removed, and pure serum was forced through, the pulsations again commenced. Impure air means imperfectly oxygenated blood; such blood sent to the brain means the evolution of defective nerve force; this insufficient nerve stimulus supplied to the heart causes weakened cardiac action, and loss of tonicity and elasticity in the the heart substance. In addition, we have the direct depressant effect of the impure blood on the heart itself, affecting the ganglia in the cardiac tissue.

Taking into consideration the causes enumerated, the number of individuals exposed to these causes, and the comparative infrequency of the occurrence of heart-strain, we must take refuge in personal idiosyncrasy. In these cases of heart-strain there must be, in addition to the efficient cause, a predisposing cause beyond demonstration. "Personal equation" is an explanation that, in our lack of knowledge, we must frequently employ, and with our present means of investigation, will probably remain, like the "x" in algebra, an unknown quantity.

We have now discussed the direct relation of muscular exertion to cardiac lesion, and also some causes influencing the heart, weakening and depressing its power, thus rendering it more liable to injury from the muscular effort. We have shown the possible direct effect on the normal heart of severe muscular exertion; then how

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much more probable is this effect when promoted by loss of nervous power, and personal idiosyncrasy?

What is the pathology of this lesion? In some cases no physical change whatever; in others, simple dilatation; in some, hypertrophy, sometimes fatty degeneration, but, according to Leyden, never sufficient to account for the dilatation which he believes to be due to a true stretching of the muscular tissue. The heart, in order to meet the increased demands upon it, may add to the dilatation a hypertrophy that maintains the integrity of the cardiac function for years, and the patient be entirely free from cardiac symptoms. If then, from any cause, the hypertrophy yields, we have a case of organic heart trouble dependent upon the over-strain years before, and not, as might be supposed, upon some recent cause. In cases of long standing, or unusual severity, marked œdema may be present; Leyden, in all his autopsies on cases of this kind found dilatation, but, of course, this dilatation and consequent cardiac failure were the causes of death, and as some cases recover, apparently completely, we must suppose that in cases in which recovery had occurred there was either originally no anatomical change in the heart tissue, or the dilatation disappeared, and there was a restitutio ad integrum.

From the foregoing, we think the following conclusions justifiable:

1. The heart-muscle, like other muscles, is subject to injury from overwork.

2. Like other muscles, it may be weakened by unusual and excessive work, and losing its tonicity and elasticity, may, by the dilating force of the increased blood-pressure, be dilated.

3. Like other muscles, it may accustom itself to the increased exercise and become hypertrophied.

4. Like other muscles, it may not exhibit any physical change as the result of overwork, yet be exhausted, and give evidence of it by weakened and irregular (spasmodic) action.

The heart may show the evidences of strain and overwork in two ways:

1. By weakened and irregular action without any demonstrable physical change.

2. In addition to the irregular action of the heart there may be physical changes, as dilatation or hypertrophy.

Of course, such symptoms as characterize the first condition, also accompany the second, and, in addition, physical examination gives evidence of cardiac enlargement. When compensatory hypertrophy has occurred, except the increased cardiac volume, there may be no other evidence of the preceding heart-strain.

In these cases a previous history of excessive muscular effort will serve to attract special attention to the cardiac symptoms. The symptoms may occur suddenly, as the result of a severe and prolonged effort, or may appear gradually; in the latter cases the predisposing causes, loss of nervous power, impure air, etc., are the most important factors.

The immediate symptoms are included in the term cardiac asthma; labored and irregular action of the heart, distressing dyspnœa, and pain in the cardiac region. Dependent upon the severity of the strain, these symptoms vary in intensity; sometimes slight, and again counterfeiting approaching dissolution. Cerebral anæmia from imperfect cardiac action causes faintness and vertigo. When the heart has undergone dilatation we have proof of this as the result of physical examination; that is, of course, if sufficiently dilated to be detected. In most of the first class of cases there is slight dilatation, but which cannot be detected. The increased area of cardiac dulness, assuming a globular form, is evidence of general dilatation; if dulness increased toward the right, the right ventricle is involved; if downward and to the left, the left. The apex beat is usually the best criterion of the condition of the left ventricle (Leyden). Auscultation usually reveals clear, but weak, or flapping heart-sounds. Occasionally a systolic murmur at the apex is heard, due, as is claimed, to a relative insufficiency of the mitral valves. Nothnagel, in opposition to most authorities, denies the origin of a murmur from such a cause.

In cases that go from bad to worse, the dyspnœa becomes very severe and distressing; the cardiac pain becomes worse, resembling true angina pectoris; incapacity for mental or bodily effort; attacks of vertigo and faintness; disturbances of the digestive tract; disturbances of the circulation producing œdema.

Finally, the heart-muscle becomes greatly exhausted, and we have extreme cardiac weakness; the heart lacks force to propel the blood, and cyanosis, suppression of urine, collapse, etc., appear. At last coma ensues, and the patient dies. The last stage is similar to the last stage of valvular disease; in fact, so far as cause and effect are concerned, is identical, as it is the asystolia or cardiac insufficiency that causes death.

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ORIGINAL ARTICLES.

ABDOMINAL SECTION FOR TRAUMATISM; INTESTINES SUTURED: RECOVERY.

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ON the 19th of December, 1886, Samuel Gaines, colored, aged fifteen years and seven months, was shot through the abdomen with a Smith & Wesson pistol, ball 38 calibre, distance six feet. At the time of the accident the patient was standing, and his comrade, from whose hands the pistol was discharged, was sitting on a low stool at his left side. The ball entered the left inguinal region, passed obliquely upward, and emerged in the right umbilical, about one and a half inches from the median line.

I saw the case about six hours after the accident, when the following features were presented. The patient was very restless, had an anxious expression

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of countenance, much thirst, and a weak pulse; also a deep-seated, emphysematous, crackling sound around the borders of the external opening. There was hepatic resonance, which, though generally regarded as pathognomonic, is not an unerring sign, for it may be caused by the transverse colon being placed between the liver and the walls of the abdomen. A slight displacement of the liver might also give rise to resonance. The rectal temperature was decidedly subnormal.

These signs, especially when considered with reference to the course of the ball, which had been explored with Nélaton's flexible spiral probe, clearly indicated intestinal perforation, at one or more points. Laparotomy was decided upon, and while preparations were being made for the operation, there was a movement of the bowels, and blood was passed per anum; small particles of fecal matter were also observed escaping through one of the external openings. This settled the question of intestinal perforation beyond all cavil.

The operation was performed under some difficulties, as is often the case in surgical practice out of town, where intelligent assistance cannot always be obtained. The patient resided on a plantation, remote from any settlement; the nearest physician being eight or nine miles distant, much time must elapse before his aid could be procured. The earlier an operation is done in a case of this kind the better; every hour's delay adds to the danger of peritonitis and septicæmia. The peristaltic motion of the bowels was evidently recovering from the paralysis imparted by the shock, and blood and fecal matter were already being extravasated into the cavity. I therefore determined to proceed with such help as I had. An intelligent white man, and two or three negroes constituted my corps of assistants.

I administered the chloroform, and when anæsthesia was fully established, gave the towel to the white man, with instructions to withhold it when directed. The patient had been previously troubled with diarrhœa, had eaten nothing since dinner of the previous day, and very little then. This was in some respects an advantage, and in some a disadvantage. He was very gaunt, and the abdominal walls were relaxed, and the bowels flat and flabby. This somewhat embarrassed the operation, but proved in the end a fortunate circumstance.

By an incision of three inches in the median line, below the umbilicus, the peritoneum was reached. The edges of the opening were thoroughly mopped with sponges wrung out of hot water before the peritoneum was opened; consequently very little blood, if any, escaped into the cavity. When the cavity was reached, every precaution was taken to prevent the bowels from becoming chilled, by enveloping them in hot cloths. Search was then made along the track of the ball, and three intestinal openings were found—two in the descending colon, the ball having entered a little above the sigmoid flexure and passed through; a third opening was found at the point where the ball emerged from the cavity, it having cut through a knuckle of the small bowel. An appendix epiploicæ, which was found lacerated and bleeding freely, was tied with catgut at the base and cut off. The discharge of blood from a small vessel on the inner side of the colon was so free that it was necessary to throw a small ligature around it. There was considerable oozing from a number of smaller vessels which was readily checked by sponges soaked in hot water. The edges of the intestinal openings were now pared and drawn together by Lembert's suture, the stitches being placed only a line apart. Care was taken in putting in the stitches to introduce the needle more than a quarter of an inch from the opening, causing it to penetrate to the submucous tissue, and then bring it out again about an eighth of an inch from the edge of the wound on the same side. On the opposite side it was introduced about one-sixth of an inch from the opening, and brought out a quarter of an inch from it. The advantage from this precaution is that, when the sutures were tightened, the mucous membrane was inverted, and the serous surfaces were brought in contact. Serous surfaces unite readily when brought in apposition; but no union can possibly be effected between two mucous surfaces, or between a mucous and a serous surface.

The peritoneal cavity contained a considerable quantity of blood and fecal matter. The cavity was thoroughly mopped with hot sponges. The nozzle of a fountain syringe was introduced—the patient being turned a little to one side—and a steady stream of hot carbolized water kept up till the water came out clear.

All blood and fecal matter being removed from the cavity, the incision was closed by five white silk sutures, supported by adhesive strips, the whole enclosed in a gauze dressing and an elastic flannel bandage. The bowels were kept locked by repeated doses of morphia for eight days, during which time not a particle of food was allowed, except occasionally a small glass of fresh milk. The sutures were removed on the eighth day, when the parts were firmly united by first intention. All dressing, except the adhesive strips and flannel bandage, was now removed, and the patient was allowed a light diet of peaches and milk and mush and milk for a few days, when he resumed his regular habits. On the morning of the ninth day there was a healthy natural action of the bowels, accompanied by no pain or inconvenience. The operation was in all respects very satisfactory. The patient recovered without a bad symptom, and is now, more than three months since the accident, perfectly well, and attends regularly to the duties of a farm hand.

Although the profession is now much interested in abdominal section for any purpose, more especially for traumatism and suturing the intestines, the literature on the subject is yet very meagre. Dr. T. S. K. Morton, of Philadelphia, in an able and interesting paper, published in The Medical News of February 19th, furnishes considerable valuable information on the subject, more than can be found elsewhere. He also makes some excellent suggestions as to the manner of diagnosticating the existence of intra-peritoneal injury; also the circumstances under which abdominal section would be proper. But Dr. Morton is not correct in all his

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statements. He says the first recorded case of gunshot wound treated by abdominal section is that of Dr. Kinloch, of South Carolina, in 1881, and that the first recovery is that of Kocher, of Switzerland, in 1883. Dr. Kinloch's operation was done in 1862, on a soldier in the Confederate army. The operation was successful, and the patient lived a number of years afterward. This case is reported in the *Medical and Surgical History of the War of the Rebellion.*

BACTERIOLOGICAL NOTES.

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The Bacillus of Typhoid Fever.

IN a paper read before the Association of American Physicians in June last, and published in THE MEDICAL NEWS of August 21, 1886, the writer has reviewed the evidence relating to the etiological import of the bacillus of Eberth, up to the date at which this paper was written. Since that time several important papers have been published, in which detailed accounts are given of extended experimental investigations relating to the biological characters of this bacillus and its relation to the disease with which it is associated. My object at present is to consider briefly this recent experimental evidence, and this I can best do under several distinct heads.

(*a*) *Typhoid bacilli in the blood.*—Almquist,[1] in 1882, reported that he had occasionally found in the blood of typhoid patients during the second or third week of the disease short rods. In the same year Dr. Moxon, of London, in a paper contributed to *The Lancet*, says,

"During last winter's clinical session, some of my most acute and intelligent friends searched carefully for germs in the blood of several severe typhoid cases. The result was that one bacterium was seen, only one, but I was told that it was a very active one."[2]

Cornil and Babes (1885) say that the bacilli are sometimes found in the blood.

Meisels (1886)[3] claims to have found the bacillus nineteen times out of twenty in blood drawn from the finger.

Neuhauss (1886)[4] states that he has found the bacillus nine times out of fifteen in blood drawn from the rose spots in cases of typhoid fever. Opposed to these claims we have the negative results reported by several very careful observers, and especially those recently published by Seitz.[5] This author examined blood drawn from the finger and from roseolous spots in eleven cases. Seven times the blood was drawn from the finger and fourteen times from the rose spots. This blood was examined both by culture-methods, and by staining and direct microscopical examination. Forty-five cover-glass preparations stained with an alkaline solution of methylene-blue gave a negative result. Thirty-seven gelatine plates, and thirty-five *Gläsern*, prepared according to the method from which Neuhauss had previously reported successful results, gave an absolutely negative result.

Gaffky,[1] in his elaborate and conscientious experimental research upon the etiology of "abdominal typhus," also gave his attention to this point. He examined blood drawn from the rose-colored spots, from the skin over the liver, and from the forearm, in every case without result.

Fränkel and Simmonds,[2] in a recent publication, have also reported their failure to find the bacillus in six cases, in the second and third week of sickness, in which they have examined blood drawn from the index finger by the method of cultivation.

Pfuhl,[3] in 1886, also reports his failure to find the bacillus in blood drawn from typhoid patients.

In view of all this negative evidence from observers of recognized skill in bacteriological investigation, it seems to me that the positive results reported by Almquist, Meisels, and Neuhauss, must be considered with scientific scepticism, unless they receive further confirmation from a source which inspires confidence.

(*b*) *Examination of spleen-pulp.*—Maragliano,[4] in 1882, and Klein,[5] in 1884, have reported their success in finding the bacillus of Eberth in spleen-pulp extracted during life by means of a hypodermatic syringe. Quite recently (1886) Philipowicz[6] has given confirmatory evidence upon this point. The bacillus was found in four cases, and its presence further demonstrated by culture experiments with material withdrawn from the spleen.

Seitz has not ventured to repeat these experiments, as he considers puncture of the spleen to be a dangerous procedure. In a case in which a puncture was made immediately after death, for the purpose of obtaining a little splenic pulp, he has seen, when the cavity of the abdomen was subsequently opened, a long rent in the capsule of the spleen, and a considerable escape of blood into the peritoneal cavity.

The examinations made by Seitz, of splenic tissue obtained post-mortem, fully confirm those of Koch, Eberth, Gaffky, Meyer, Fränkel, Simmonds, and many other observers, as to the presence of Eberth's bacillus in this organ in a large majority—and presumably in all—of the cases of typhoid fever. Seitz made plate cultures from the spleen in 22 cases, with a successful result in every instance. In 14 of these cases the typhoid bacillus was obtained in pure cultures—that is, no other microörganisms appeared upon the plates.

(*c*) *Typhoid bacilli in the dejections.*—Gaffky (op. cit.) and Pfuhl (op. cit.) failed to obtain the bacillus from the dejections of typhoid patients, but later investigators have been more successful. Thus, Fränkel and Simmonds, in 1885, were successful in

[1] Tyfoid febers backterie, Nord. med. Ark. Stockholm, xiv., No. 10.
[2] Lancet, Dec. 9, 1882, p. 974.
[3] Wiener med. Wochenschr., 1886, No. 21.
[4] Berliner klin. Wochenschr., 1886, Nos. 6, and 24.
[5] Bakteriologische Studien zur Typhus-Ætiologie. München, 1886.

[1] Mitth. a. d. Kaiserlich. Gesundheitsamte, Bd. ii.
[2] Die ætiologische Bedeutung des Typhus bacillus, 1886.
[3] Deutsche Militärärztl. Zeitschr., 1886, p. 23.
[4] Centralbl. f. die med. Wissensch., 1882, No. 41.
[5] Ibid., 1884, p. 695.
[6] Refer, in Centralbl. für klin. Med., 1881, p. 278.

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3 cases out of 11. Pfeiffer[1] also was able to obtain the bacillus from perfectly fresh discharges obtained from patients during the epidemic at Wiesbaden in 1885.

Seitz (op. cit.) examined, by the plate method, 19 dejections from 6 different cases, and obtained a positive result 8 times.

(*d*) *Typhoid bacilli in the urine.*—Seitz made careful researches by the plate method in 7 cases, with a negative result in 5. In 2 cases, however, the typhoid bacillus was found in great numbers. Sixty plates made from the 5 cases remained sterile. On the other hand, the plates from the remaining 2 cases furnished a multitude of colonies, which, by the characteristic growth on potato, were demonstrated to consist of typhoid bacilli. In these 2 cases alone the urine was found to be albuminous. Seitz supposes that in these cases there was preëxisting disease of the kidneys, as the urine was found to be albuminous when they were first admitted to hospital. He remarks that these results give support to the view of Wyssokowitsch,[2] who arrives at the conclusion that a filtering membrane in normal condition is impenetrable for bacteria, and that it is only when the normal separation walls are injured that bacteria which have accumulated can escape at the point of injury.

In sections made from the kidney in 7 cases of typhoid fever, Seitz failed to find colonies of the bacillus, as Gaffky had previously done in 3 cases out of 7.

(*e*) *Experiments upon animals.*—The earlier investigators—Murchison (1857), Birch-Hirschfeld (1874), Klein (1875), Bahrdt (1876), Von Motschukoffsky (1876), Walder (1879)—in their experiments with the discharges of typhoid patients, and with blood, failed to obtain any satisfactory evidence that the disease may be transmitted to the lower animals. Gaffky (1884), operating with pure cultures of the bacillus, also failed to obtain any positive results in experiments upon rabbits, guinea-pigs, rats, mice, and Java apes. Fränkel and Simmonds, on the other hand, have shown that such cultures, when injected in *considerable quantity* into the circulation of a rabbit, or into the peritoneal cavity of a mouse, may cause death after an interval varying from *a few hours to two or three days*. These experimenters report a positive result—*i. e.*, death of the animal—in 2 cases out of 20 in which the injection was made into the peritoneal cavity, and in 20 cases out of 46 in which the culture was injected into the circulation of rabbits through the large vein of the ear.

In the fatal cases the presence of the bacilli in the spleen was demonstrated by microscopical examination and by culture experiments. The more recent (1886) experiments of Seitz were made upon guinea-pigs and rabbits. The general result of these experiments is to confirm Fränkel and Simmonds as to the pathogenic power of *cultures* of the typhoid bacillus when injected in sufficient quantity into the circulation, or when introduced into the alimentary canal. But these cultures contain both the bacillus and the ptomaine produced during its active growth, which was made the subject of experiment by Brieger[1] in 1885. The more recent experiments of Sirotinin,[2] of A. Fränkel,[3] and of Beumer and Peiper,[4] show very clearly that the pathogenic power of the cultures cannot properly be ascribed to the direct action of the bacillus, and that there is nothing specific or characteristic in the effects produced.

In the experiments of A. Fränkel upon guinea-pigs the method of Nicati and Rietsch was followed—that is to say, cultures were injected into the duodenum, either with or without previous ligation of the common bile duct. In fourteen experiments a positive result was obtained seven times. The animal died at the end of three to seven days. The post-mortem appearances consisted in swelling of the spleen, swelling of Peyer's patches both in the small and large intestine, and, in a single case, a fresh ulcer one-half of a centimetre in diameter. The intestinal contents were fluid. The mesenteric glands were swollen, of grayish-red color, and partly studded with hemorrhagic foci. The experiments of Beumer and Peiper show very clearly that these appearances cannot be taken as evidence that the animals died from a specific typhoid process, for similar results were obtained by them from the injection of cultures of five other microörganisms; viz., (1) a greenish-yellow bacillus which does not liquefy gelatine; (2) Bacillus subtilis; (3) a white bacillus; (4) Micrococcus prodigiosus; (5) a yellowish-green bacillus which liquefies gelatine.

The authors referred to sum up their results in the following language.

"When for the decision of this question we consider the above recorded experiments, there can be no doubt that they give concordant evidence in favor of the view that the typhoid bacillus has no specific characteristic action upon the lower animals experimented upon. All of the anatomical changes, such as swelling of the spleen, of the mesenteric glands, of Peyer's patches, the evident inflammation of the upper portion of the small intestine with the watery overflow into the lumen of the gut, which leave us in doubt whether we have before us a disease process similar to that of typhoid, all of these we see in equal degree, with almost the same regularity, resulting from the intravenous or intraperitoneal introduction of the five named species of bacilli. Everywhere the same disease-picture, the same pathological lesions."

The result which Beumer and Peiper have reached after a protracted and painstaking series of experiments is in accord with that which Sirotinin has attained by a more direct method. This author injected cultures which had been subjected to a temperature which insured the destruction of the bacillus, and of spores, if present, in quantities corresponding with the amount of non-sterilized cultures which had given positive results in the experiments of Fränkel and Simmonds, and of

[1] Deutsche med. Wochenschrift, 1885, p. 500.

[2] Ueber die Schicksall der in's Blut injecirten Mikroörganismen im Körper der Warmblüter, Zeitsch. f. Hygiene, Heft 1, Bd. i.

[1] Weitere Untersuchungen über Ptomain., Berlin, 1885.

[2] Die Uebertragung von Typhus Bacillen auf Versuchthiere, Zeitschrift für Hygiene, Bd. 1, Heft 3, 1886.

[3] Zur Lehre von der pathoganen Eigenshaften des Typhus bacillus. Centralbl. f. klin. Med., 1886, No. 10.

[4] Bacteriologische Studien über die ætiologische Bedeutung der Typhus bacillen, Zeitschrift für Hygiene, Bd. 1, Heft 3, 1886.

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Seitz. Sterilization was effected by exposing his cultures to steam at a temperature of 100° C.

Injections were made into the circulation of rabbits, through the ear-vein, into the peritoneal cavity and beneath the skin of mice, and were administered to guinea-pigs *per os*, and by injection into the peritoneal cavity. The dose employed corresponded with that used in the experiments of Fränkel and Simmonds, and of Seitz.

Experiments were also made with culture fluids from which the bacilli had been removed by means of the Chamberlain filter.

The general result may be briefly stated in the language of the experimenter:

"These experiments show in a definite manner that in fact, culture-solutions from which the typhoid bacillus has been destroyed by sterilization or removed by filtration, induce exactly the same morbid phenomena—*Krankheitserscheinungen*—as cultures containing living bacilli; that they cause death in the same time, and that they induce similar pathological changes.

"As in the experiments of Fränkel and Simmonds, so also in my own, the result depended, in general, upon the quantity of the culture injected."

Sirotinin has observed a difference in the poisonous properties of cultures in different media. According to his experiments, more of the poisonous ptomaine—typhotoxin of Brieger—is present in gelatine cultures than in those in agar, or on potato. The age of the culture also is a matter of importance. At the expiration of three days but little ptomaine is found, and he found it best to use old cultures, and states that the poisonous qualities are not diminished even when the cultures have been kept for weeks. The question whether the typhoid bacillus multiplies in the body of the animal in inoculation experiments is answered in the negative both by Sirotinin and by Beumer and Peifer. The last-named authors have made extended experiments with reference to this point, and find that instead of an increase, such as occurs when a microörganism which is pathogenic *per se* is introduced into a susceptible animal, the typhoid bacillus quickly dies out and disappears from the body of an animal into which it has been introduced in enormous numbers by one of the methods employed in their experiments.

(*f*) *The question of spores.*—Since the publication of Gaffky's memoir, in the second volume of the *Mittheilungen aus dem Kaiserlichen Gesundheitsamte*, his statements with reference to the formation of spores by the typhoid bacillus have been generally accepted, and have been confirmed by most of the observers who have followed him. Seitz, however, has not been able to convince himself of the presence of spores in his cultures. Buchner[1] and Michael[2] also report their failure to find spores.

According to Gaffky, spores are not formed at the room temperature. He has repeatedly searched for spores in gelatine and potato cultures grown at the room temperature, but without success. On the other hand, in cultures kept in the incubator at 37° C., spores were constantly found on the third and fourth day, in unstained preparations, and also in stained cover-glass preparations. These spores were shining, round bodies, occupying the whole width of the bacilli, and situated at the ends of the rods. Only a single well-developed spore was observed in a single rod. At the opposite end of such a rod, however, one sometimes observes an indication of the formation of a second spore. But Gaffky says that he has never seen two perfectly developed spores in a single rod. When two rods are joined, no spores are found at ends which are coupled together, while each rod may have a spore at its free extremity.

The same thing is seen in the filaments (scheinfäden), which are made up of separate bacilli, each of which may contain a single spore. When a culture has been kept for a considerable time, one finds near the bacilli containing spores, free round spores, which show themselves to be such through their uniform size and refractive power, as well as through the fact that they do not take the aniline colors. Gaffky says:

"As the question of the formation of spores is one of high importance for the etiology of the disease, I have sought to clear up this point. I used for this purpose the excellent thermostat of d'Arsonval, by which it is possible to maintain precisely the same temperature for weeks at a time. The result of this research is that growth and spore formation undoubtedly occur at 42° C. (107.6°), although, perhaps, somewhat less vigorously than at the body temperature. From 30° to 40° appears to be the most suitable temperature for the development of spores. They are also formed at 25° although somewhat later, 20° C. appears to be the lowest point at which they form; at least I have at this temperature only found a few, not very well developed spores, at the end of eight days. Two days later the process was not much further advanced."

Gaffky also states that spores form in gelatine cultures, and upon blood-serum when kept in the incubating oven at a temperature of 30° to 40° C. Blood-serum containing spores, dried in a thin layer, was kept for three months, and then inoculated into flesh-peptone-gelatine with success.

I may say here that I have started fresh cultures of the typhoid bacillus from a liquid culture in veal broth which has been kept in a hermetically sealed glass tube for four months. I have not, however, been able to detect the presence of spores in this material. Seitz has started fresh cultures from a dried-up gelatine culture which had been kept for nearly eight months.

Bacilli dried upon silk threads were found by the author last mentioned to grow at the end of three weeks.

The interesting results obtained by Seitz in the cultivation of this bacillus at a low temperature may be mentioned here. Gelatine cultures placed in an ice-chest had, at the end of three weeks, a development about equal to that of a similar culture kept at the room temperature for four or five days. Gelatine plates kept at a constant temperature of 3° C. above the freezing-point, showed a decided growth at the end of forty-eight hours.

(*g*) *The thermal death-point of the typhoid bacillus.*—Some three months since the writer commenced a series of experiments intended to fix in a definite

[1] Archiv f. Hygiene, vol. iii. p. 361.
[2] Fortschr. d. Medicin, 1886, No. 11.

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way the exact degree of heat which is required to destroy each of the pathogenic microörganisms at present known to us. A detailed account of the results obtained will be given in a paper to be published in the July number of *The American Journal of the Medical Sciences*. I shall give at present, however, an account of these experiments so far as they relate to the typhoid bacillus.

In all of these experiments I have adopted ten minutes as the standard time of exposure to a given degree of temperature, which, in a series of experiments, is, of course, changed according as it is found to be too high or too low.

A fresh culture of the organism to be tested is introduced into capillary glass-tubes having an expanded extremity to serve as an air-cavity, by means of which the culture-fluid is drawn into or forced out of the capillary tube. This is readily accomplished by means of heat.

The glass tubes, hermetically sealed, are introduced into a vessel containing water, which is kept at a constant temperature by personal supervision, a Bunsen burner being the source of heat. A standard thermometer is placed in the vessel, and this and the capillary tubes are protected from the bottom of the vessel containing them by a thick plate of non-conducting material. A uniform temperature throughout the fluid is maintained by constant stirring.

After exposure for ten minutes to a given temperature the sealed extremity of the capillary tube is broken off with sterilized forceps and the contents are forced, by heating the air in the expanded extremity, into a test-tube containing sterile fleshpeptone-gelatine, which has been liquefied by exposure in a water bath to a temperature of 40° C., or below. The cotton plug is only removed for a moment in order to introduce the contents of the capillary tube, and in my extended experiments I have very rarely seen any accidental contamination. A rubber cap is next placed upon the open end of the test-tube, and the gelatine is spread in a uniform manner over the interior of the tube by the method of Esmarch.[1] This is accomplished by rolling the tube in iced water until the gelatine hardens. These tubes are then placed in a room or incubating oven, having a suitable temperature—20° to 22° C.—and are left until the question is determined as to the destruction of the vitality of the organism which has been introduced into them.

A control experiment is made in every case with material from the same culture which has not been subjected to heat. The control usually shows numerous colonies within twenty-four to forty-eight hours, but in the case of certain pathogenic organisms the development of colonies which can be recognized by the naked eye takes a longer time—*e. g.*, erysipelas, mouse septicæmia; others, such as the tubercle bacillus and the gonococcus of Neisser, will not grow at all under these conditions.

As growth is, as a general rule, retarded by temperatures approaching that at which it is entirely prevented, it is necessary, when no evidence of growth is seen sooner, to keep the tubes for at least a week. A negative result at the end of this time may be taken as evidence that the organism introduced into the tube was killed by the temperature to which it had been subjected.

I come now to speak more specifically of my experiments upon the typhoid bacillus.

As authors generally agree in the statement that the typhoid bacillus forms spores, and as my own previous experiments upon spore-bearing bacilli, and those of others, indicated that spores are only killed at a comparatively high temperature, I made first the following experiment, in which material from a pure culture in veal broth was exposed for the time adopted as a standard (ten minutes) as follows:

Exp. of Nov. 10. **50°**, 60°, 70°, **cont.** In this and all subsequent records of experiments made, the figures in heavy type indicate that growth occurred; the figures in light type indicate the absence of any growth—*i. e.*, the killing of the organism at the temperature indicated by the figures. It will be seen that at 60° or at 70° C. no growth occurred, while in the control tube, and in that at 50° C. (= 122° Fahr.) the typhoid bacillus grew abundantly. I may say here that my object has been to determine the lowest temperature which will insure the destruction of all germs of each species tested. I have not, therefore, considered it worth while in those cases in which only a few colonies have grown out, after some days, to count the number of colonies and record the same. This would involve a vast amount of work, and from my point of view such a record would have no special advantage over the simple record of growth or failure to grow. In the practical application of data of this kind in the disinfection of typhoid excreta, etc., it is evident that a few colonies, representing a few bacilli or spores, which have survived the temperature tested, are as potent for mischief as a larger number.

My stock for these experiments is from cultures brought from Europe by Dr. Bolton, and obtained by him in the laboratory of Professor Koch. I have repeatedly tested this stock by means of potato cultures, stained cover-glass preparations, etc., and it presents all of the characters assigned to the typhoid bacillus by Gaffky, by Eisenberg in his *Bakteriologische Diagnostik*, and by Flügge in his recent work, *Die Mikroörganismen*.

In fluid cultures and in potato cultures kept at the room temperature I have not been able to discover any spores, but in potato cultures kept in the incubating oven at 38° C. I have repeatedly seen spherical, highly refractive bodies at the ends of the rods, which appear to be spores, and no doubt correspond with the bodies which have been called spores by Gaffky and others. My only reason for hesitation in concurring in this opinion is based upon the fact that my frequently repeated experiments show that potato cultures containing these refractive bodies are killed by a temperature of 60° C. I have in no instance had any growth from potato cultures exposed to this temperature for ten minutes. At first I was disposed to think that this fact is fatal to the view that these refractive bodies at the ends of the typhoid bacilli are reproductive spores, for all spores which I had previously met with resist a much higher

[1] Zeitschrift für Hygiene, Bd. 1, Heft 2, S. 293

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temperature than this. But, on second thought, I am not inclined to accept this inference without further investigation. It does not follow that, because the spores of several well-known bacilli resist a temperature of 100° for some minutes, all spores have a like resisting power. Indeed, we have heretofore recognized differences in the resisting power of those spores which are only killed at a comparatively high temperature, and it is quite possible that some spores are killed at a comparatively low temperature. My investigations, which are not yet completed, favor the view that this is the case, and that these refractive bodies are reproductive spores, notwithstanding the fact that their resisting power for heat is not greater than that of the bacilli themselves. I shall consider this question *in extenso* when my experiments upon the thermal death-point of other bacilli have been completed.

The experiments which I have made upon the typhoid bacillus up to the present date are recorded in the following table:

TYPHOID BACILLUS.

(Ten minutes exposure.)

Date.	Culture medium.	Experiments.	Remarks.
Nov. 10.	Veal broth.	**50°, 60°, 70°, cont.**	In oven at 38° for 48 hours.
Nov. 15.	Veal broth.	**50°, 52°, 54°,** 56°, 58°, 60°, **cont.**	Fluid culture of November 1st.
Nov. 30.	Potato culture.	**50°, 55°,** 60°, 70°, 80°, **cont.**	Culture at room temperature.
Dec. 4.	Potato culture.	60°, **cont.**	Culture in oven at 38° for 7 days.
Dec. 24.	Potato culture.	60°, 70°, 80°, **cont.**	Culture in oven for 10 days, then kept at room temperature for 15 days.
Jan. 15.	Potato culture.	55°, 60°, 70°, 80°, **cont.**	Culture in oven at 38° for 7 days.
Jan. 20.	Potato culture.	**48°, 50°, 52°,** 60°, **cont.**	Potato in oven at 38° for 10 days.
Jan. 22.	Potato culture.	**50°,** 60°, **cont.**	Potato in oven 7 days, then kept at room temperature 7 days.

An inspection of this table shows that no development occurred in any instance after exposure to a temperature of 56° C. and above. In one experiment (Nov. 30) growth occurred after exposure to 55° C., but in this case it was very much delayed; in the experiment of January 15, no development occurred after exposure to 55°. Differences of this kind, when we are on the border-line, are to be expected.

We may then safely say that the thermal death-point of the typhoid bacillus is 56° C. (= 132.8° F.).

A CASE OF POISONING BY THE HYPODERMATIC USE OF COCAINE MURIATE.

BY J. HOWELL WAY, M.D.,
OF WAYNESVILLE, N. C.

ON March 15th, having been for some time engaged in studying the physiological and therapeutical effects of cocaine on human beings, I concluded to make a personal experiment with cocaine administered hypodermatically—an experiment which proved a very dangerous one, and which came very near terminating fatally.

Without presuming to add anything to the already voluminous papers which have thronged the journals during the past two years, on the action of cocaine and its salts, I submit a report of my case, believing it may be of interest as the personal experience of a physician.

At 6 P.M. I injected a quarter of a grain of Squibb's hydrochlorate of cocaine into the dorsal aspect of the left forearm. In three minutes this was followed by a limited degree of anæsthesia in the integument for about two inches in each direction from the point of injection.

Notwithstanding the very superficial nature of this and of subsequent injections, the local anæsthesia was at no time marked—never becoming developed sufficiently to prevent a sensation of pain on puncturing or pricking the integument with the point of a needle.

No constitutional symptoms were manifest at the expiration of fifteen minutes. I now made another injection of a quarter of a grain of the salt at a point a few lines removed from the site of the former injection. Again fifteen minutes elapsed without there being any apparent increase in the degree of local anæsthesia present or the appearance of any visible constitutional effects.

After debating the question as to whether or not the dangers of cocaine-poisoning had been overrated, and a query as to the purity of the salt used, I, emboldened by the apparent inertness of the drug, at 6.30 P.M. injected near the same points as before, half a grain more, making one grain taken in half an hour hypodermatically. In ten minutes from the time of the last injection constitutional symptoms began to be manifest. I became restless and disinclined to remain quiet, my respirations increased to thirty per minute, and grew shallow and sighing in character, while my pulse rose from normal (72) to 120.

Five minutes later I became convinced that I was poisoned, and perhaps might need assistance. I arose, and buttoning my coat about me, walked down a flight of stairs and a distance of two hundred yards to a drug-store. On walking in I endeavored to tell the druggist what I wanted, but was unable to collect words to express my ideas for about one minute, during which he had me sit down. The aphasia disappearing, I told him to bring ammonia and digitalis, and accompany me to my office. I then returned, walking along without any difficulty, greeting friends I met as usual, and experiencing only a sense of slight dizziness and some precordial oppression, which continued to increase.

It was now 6.50 P.M. Twenty minutes had elapsed since taking the half grain injection. My pupils were dilating slowly; mental faculties perfectly clear and collected; no pain in head or other part of body; respirations reduced to normal frequency, but very shallow and sighing; pulse 140, quick, feeble, and barely perceptible at wrist. I walked about the room for three or four minutes,

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when I grew weak and exhausted, and was compelled to lie down on a lounge.

At 7.20 P.M. my condition was almost that of collapse. Mental faculties perfectly clear and natural; pupils widely dilated; mouth dry, and a sensation as of the presence of a foreign body in the pharynx; respirations shallow, sighing, and reduced to 11 per minute; pulse elevated to 180, very feeble, fluttering, and extinct at wrist; extremities cold; body was warm to the touch, but my own sensations were those of intense cold. I was placed in front of a large fire and my body enveloped in heavy woollen blankets while my feet and hands were briskly rubbed.

A sense of impending dissolution came over me—not a feeling of fear, but a conviction that my physical condition was such that death was almost inevitable. My mind remained perfectly clear, and I gave my attendants all directions as to my care. I took frequent doses of ammonia and digitalis—the former seemed to be of very great advantage.

At 7.30 P.M. my condition was worse, and myself and attendants were momentarily expecting my death. My extremities seemed to lose all power of either motion or sensation. I struggled against this with all my will-power, and would call for frequent doses of ammonia, which would give me (so it seemed) sufficient strength to move. Painful emesis occurred twice, each time being attended with the ejection of about f℥ij of white, frothy matter which soon evaporated, leaving only a faint white residuum. Respirations were now only 9 per minute, and exceedingly shallow; carotid pulse faintly beating at 200; radial pulse entirely imperceptible; and no impulse of heart-beat felt on palpation. Mind still clear. Suffered no pain.

I remained in this state for about half an hour, during which, in addition to frequent small doses of ammonia and digitalis, I inhaled three drops of nitrite of amyl. A slight improvement in the cardiac action was now noted. Respirations increased to fourteen per minute, pupils contracted to normal, and skin became moist and warm. At 10 P.M. the radial pulse returned, was full, and reduced to 140. Respirations were of normal frequency, and of almost normal vigor. Improvement continued. At 11 P.M. respirations normal, pulse 120. Suffered at this time from a dull, aching pain in lumbar region of spine and sense of great weakness and prostration. Half an hour later very copious diuresis took place.

At 1 A.M. was entirely well save the feeling of exhaustion naturally following so great a derangement of the vital functions. Was now removed to my room, and slept soundly until 8 A.M. During the day I suffered much annoyance from the very dry state of my pharynx and also from muscular weakness. Both these inconveniences disappeared during the following night, and since then my health has been most excellent.

MEDICAL PROGRESS.

Subiodide of Bismuth in the Treatment of Wounds.—Dr. Sweetman reports, in the *Canadian Practitioner* for April, 1887, his results obtained in the use of subiodide of bismuth, as originally brought to the notice of the profession in an article by Dr. A. S. Reynolds, of Philadelphia, published in The Medical News of October 9, 1886.

Its advantages as a dressing are:

1. That it is a reliable antiseptic.
2. That it is not easily evolatilized, and when properly applied the dressing may remain untouched for several days.
3. That it has no objectionable odor.
4. That it produces no irritation.
5. That there is no danger from absorption, and is harmless even when taken by the mouth.
6. That if the subiodide of bismuth is used properly, the prognosis in every case may be certain cure in half the time, and with far better results than can be maintained by any other treatment he has seen employed.

Iodol in Diphtheria.—In order to test the statements of Dr. Mazzoni, Dr. L. L. Stembo, of Vilna, tried (*Proceedings of the Vilna Medical Society*, No. v., 1887, p. 114) the local use of iodol in seven cases of diphtheria, two of which were severe. The drug was applied either alone, in powder, or in the form of a solution (℞ Iodoli, ℈ss; liq. vini, ʒss; glycerini, ʒiijs). All the patients recovered after treatment lasting from four to six days. The advantages claimed by Dr. Stembo for iodol are its complete harmlessness, its freedom from unpleasant smell or taste, the painlessness of its application, and the absence of any untoward secondary effects, such as loss of appetite, nausea, vomiting, etc. —*British Medical Journal*, April 9, 1887.

Absorbent Canton Flannel.—England, in describing antiseptic dressings which he prepares for use in the Philadelphia Hospital, describes as follows his preparation of canton flannel:

Under this term we use, in the Philadelphia Hospital, a canton flannel rendered absorbent by boiling in a 3 per cent. solution of caustic soda for 1½ or 2 hours, until all the fatty matter in the fibres is decomposed, then washing in several portions of cold water, then macerating for 10 or 15 minutes the product in a 1.5 per cent. solution of hydrochloric acid, whereby any traces of free soda are neutralized, and the fibres of the goods are whitened; and, lastly, followed by several washings in water, wringing out with a machine and drying. This product has been found to be peculiarly serviceable in hospital practice as a cheap, efficient, and reliable substitute for all the minor cases for which at present the so-called patent lint is generally demanded; for example, in local applications of lotion of lead-water and laudanum, and as a dressing with various ointments upon chronic sores, ulcers, etc. The proof of its utility may be inferred from the fact that while we used, during 1886, 1500 yards of patent lint, we used, also, 2500 yards of this absorbent canton flannel. In cost it is almost one-half of that of patent lint.—*American Journal of Pharmacy*, April, 1887.

A Formula for the Use of Paraldehyde.—Dr. Eccles, of Brooklyn, in the *Reports of the New York State Pharmaceutical Association* for 1886, gives the following as a useful formula for administering paraldehyde:

The following is the formula that has so far given the

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best results. If properly dispensed it will be perfectly transparent. To have it so care must be taken to see that the articles are pure and *the vials* into which they are put *quite dry:*

℞.—Ol. amygd. dulc.,
Paraldehyde . . . . . āā ʒij.
Chloroformi . . . . . gtt. xij.
Ol. cinnam. . . . . gtt. iij.—M.

Sig.—One-half at bedtime, the rest during the night if required.

This, of course, is designed for an adult so far as the dose is concerned. Children can be given it in proportion to their ages. In cases of strychnine poisoning this whole amount or even more might be administered at a single dose. It is said to be the only reliable antidote to strychnine. According to late reports from some investigators rabbits have been saved by its use after the administration of one or more fatal doses of this poison.

HEART-STRAIN AND WEAK HEART.—DR. BEVERLEY ROBINSON states in the *Med. Record* of Feb. 26, 1887, that in these cases he has had the best results from the administration of tincture of the chloride of iron, in moderate and frequently repeated doses continued for weeks and months, while the liver was gently stimulated by tablet triturates of calomel, gr. ¼ to ½, morning and evening, or oftener. The usual heart-tonics have sometimes proved inefficient; again, they have been evidently useful. He does not approve of the use of digitalis in these cases, except in very moderate doses, combined or not with the iron tincture. If too much digitalis be given, instead of helping the patient it does him harm.

On several occasions, when digitalis had proved to be useless or injurious, he has had very excellent results from caffeine or convallaria. Certainly the latter drug is more easily tolerated by a sensitive stomach than digitalis is; and whenever the nervous supply of the heart is especially implicated, he believes that he secures more quieting effects from its employment. Among well-known cardiac tonics and stimulants for obtaining temporary good effects, at least, he knows of no drug quite equal to coca. Given in the form of wine or fluid extract, it does much at times to restore the heart-muscle to its former tone. He has obtained the best effects from the use of Mariani's wine. These results are attributable to the excellent quality of the coca-leaves and of the wine used in its manufacture. Of course, the good effects of any and all treatment will be closely allied with the stage of the disease when it first comes under observation. If the heart-muscle be healthy, with the exception of more or less loss of tonicity or contractile power, its complete integrity may be restored. If, on the contrary, the heart-fibres are already considerably stretched and the cavities dilated, while in some instances the patient may be restored to apparent health for a shorter or longer period, the probabilities are that ultimately renewed distress will be felt and further progress in the disease will take place.

MEANS TO DISGUISE THE ODOR OF IODOFORM.—*Pratique Médicale*, of March 1, 1887, gives the following various substances as useful in masking the odor of iodoform: 1. Several drops of the essence of bitter almonds; tannin; a small quantity of balsam of Peru; a mixture of iodoform and the above may be made.

2. An emulsion of iodoform and the oil of bitter almonds, equal parts.

3. Iodoform . . . . . 1 part.
Powdered charcoal . . . . 2 parts.
Sulphate of quinine . . . ⅓ part.
Essence of mint . . . . . 1/30 part.

A DEVICE TO SECURE FIXATION OF FRAGMENTS IN COMPOUND FRACTURES.—DR. MOLLOY describes the following, as seen in Schede's wards at Hamburg:

The treatment of compound fractures presents some novel features. The wound or wounds are laid freely open, irrigated thoroughly with corrosive sublimate solution, 1:1000, all loose splinters of bone removed, fracture reduced, and fixation of the fragments secured by means of a little device of Dr. Hansmann, the first assistant surgeon. It consists of a small metal plate about half an inch wide and as long as is necessary, perforated with holes at short distances. It is laid upon the periosteum, and a screw inserted through one of the holes into the bone on each side of the point of fracture. Two of these little splints are usually employed in a fracture of a large bone, after which the immobility of the limb is secured in the usual way by splints; the wound being left open and treated antiseptically. The metal plate has the advantage over bone sutures in being much more easy and simple in its application as well as removal, and it secures and maintains the approximation and fixation of the fragments just as firmly.—*Lancet-Clinic*, April 16, 1887.

HYDRIODATE OF HYOSCINE IN KIDNEY DISEASES.—DR. TIRARD, in the *Practitioner* for February, 1887, reports his experiences with the following solution:

℞.—Hyoscinæ hydriodatis . . . gr.j.
Aquæ destillatæ . . . . ♏cc.

Hydriodate of hyoscine is a drug which can be used with perfect safety in cases of kidney disease where morphine is inadmissible. It is a drug which may give rest when other sedatives fail.

If used in two minim doses subcutaneously, it may give more satisfaction to the patient than to the attendants, since the unconsciousness may be accompanied by angry and combative delirium; should this occur it will probably be sufficient to diminish the amount employed.

It is very rapid in its action, unconsciousness following in from ten to twenty minutes, and the after-effects are of a soothing character.

Even when delirium is present in a violent form, it is followed by quiet sleep, and the patient, being unconscious, is much more refreshed than by a night of short snatches of sleep produced by chloral or bromide, and the result is a marked improvement in both aspect and temper. And lastly, no irritation is produced around the site of injection.

I believe that hydriodate of hyoscine will probably take a firmly established position as a sedative in cases where morphine cannot be employed.—*Medical Age*, March 25, 1887.

DISINFECTANTS AND THEIR USES.—DR. ALFRED CARPENTER delivered an address at the last monthly

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meeting of the Association of Public Sanitary Inspectors, on "Theory and Practice as to Disinfection." He urged that sanitary inspectors, who have very great power if they use it carefully, should reason out the grounds of the application of any particular mode of disinfection, rather than give a blind obedience to a written order. With regard to smallpox, he pointed out that germs of living protoplasm in the breath of a patient will take root if immediately transplanted to the membrane of a susceptible person, but if floated about in the air for 100 yards they will lose their vitality. Isolation, with ventilation, as rapidly as possible, is necessary in such cases. For disinfecting the furniture of a house after infectious disease steam is preferable, and he advised all local authorities to provide themselves with the means of applying steam heat. Dr. Carpenter did not recommend carbolic acid as a disinfectant in cases of disease, for it has been found that the acid preserves the dormant germ from decay. This also hold goods of alcohol; the use of spirituous liquors as a protection against the evils of impure water is no protection at all. The same argument applies, though in a minor degree, to sulphurous acid. The best disinfectant is a solution of bichloride of mercury. It requires to be used with care, but it is rapid in its action, and so powerful that a solution of 1 part in 5000 of water will in fifteen minutes destroy every living germ, dormant or otherwise, with which it comes in contact. The best disinfectant for sewers is sulphate of iron. Dr. Carpenter concluded by saying that the lines on which disinfection should be carried out are: Ventilation, aërial disinfection by chlorine or steam, lime washing, washing floors and furniture with solutions of mercuric chloride; steam heat for clothing, furniture, etc.; and sulphate of iron or chloride of lime in adequate quantities for flushing. If these means are effectively applied infectious diseases will be completely banished from our midst, and any local authority which now allows of their continuance is doing defective work. —*British Medical Journal*, April 9, 1887.

Fatal Result of Large Doses of Thallin.—Professor Ehrlich, who has had very good results from thallin in typhoid fever, has had the candor to report a case (*Münchener med. Wochenschr.*, No. viii.) which ended fatally under repeated progressive doses —namely, 0.08 up to 0.58 gramme (one and a quarter grains to nine grains nearly)—of thallin tartrate. The necropsy showed the lesions of typhoid fever in the healing stage, cardiac hypertrophy and dilatation, fresh mitral endocarditis, and hemorrhagic infarcts in the renal papillæ, the last-mentioned being, as shown by experiment, a characteristic sign of thallin poisoning. Ehrlich assumes that the cardiac condition caused defective excretion and consequent accumulation of thallin. This danger may be completely avoided by fixing as the maximum dose for hourly administration 0.2 gramme of the tartrate (three grains). In the progressive administration of thallin very small doses are used at first—namely, 0.07 or 0.08 gramme—and this amount is increased daily by $\frac{1}{100}$ gramme. Heart-failure of any kind is a contraindication of thallin treatment; so are the various forms of kidney disease, and also cases which resist the influence of small doses. Professor Ehrlich deserves our sympathy and respect for his conduct in this case, which will have great influence upon the use of thallin in this country.—*British Medical Journal*, April 9, 1887.

Treatment of Acne.—Bulkley, as quoted by the *Monatshefte für Praktische Dermatologie*, No. 6, 1887, gives the following prescriptions:

For *sebacea oleosa* of the face the following lotion:

℞.—Potass. sulphat.,
Zinci sulphat. . . . . āā ʒ 1.
Aq. rosarum . . . . . ʒ 3¼.

Each of the salts used should be dissolved in half the fluid and the solutions mixed.

Repeated bathing with weak solutions of soda (1 or 2 to 600), followed by the application of an alcoholic solution of corrosive sublimate (1 to 200 water and 1000 alcohol) generally suffices to lessen the excessive formation of sebaceous matter.

Weak solutions of ergotin and belladonna or of atropia are useful when sublimate does not agree.

Seborrhœa of the scalp is treated by the following lotion:

℞.—Tinct. canthar. . . . . ʒ 2 to 5.
Tinct. capsic. . . . . ʒ 2 to 5.
Tinct. nuc. vomic. . . . ʒ 3¼.
Olei ricin. . . . . ʒ 2.
Olei lavand. . . . . ♏ 30.
Spirit. dilut. . . . . ad ʒ 3¼ or 4.
M. Fiat lotion.
Sig. External use only.

Acne sebacea cerea of the face may be treated by this ointment:

℞.—Bismuth. subnit. . . . . ʒ 1.
Ung. hydrarg. oxyd. rubr. . . gr. 30.
Ung. hydrarg. præcip. alb. . . ʒ 2.
Ung. rosat. . . . . ʒ 6.
M. Fiat unguentum.

A New Method of Taking Temperature in Children.—Filatoff writes as follows in the *Archiv f. Kinderheilkunde* on this point:

The difficulties in taking the temperature in children are but too well known, and an important symptom often fails of accuracy of record, either because the child offers too much opposition, or because the mother cannot endure the crying of the child for the quarter of an hour during which the thermometer must remain in the axilla, or the five minutes during which it should be kept in the rectum. In cases of this kind the author recommends the use of a warmed thermometer which need be kept only for a moment in the axilla, and with which the fall and not the rise of the column of mercury is to be observed. The result will not vary by more than one or two-hundredths of a degree from that which is obtained by the ordinary method. The thermometer may be warmed either by rubbing the bulb in the bare hand, or in a handkerchief, and 42° to 43° C. may be quickly indicated. It should then be quickly placed in the axilla and allowed to remain one or two minutes. The author is satisfied with the experience which he has had with this plan up to the present time.

A Method of Preparing Borated and Salicylated Cotton.—In an article on "Antiseptic Cottons

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and Gauzes," in the *American Journal of Pharmacy* for April, 1887, ENGLAND describes his methods as follows:

Borated Cotton.—Since, according to the Pharmacopœia, boric acid is readily soluble in 3 parts of boiling water and 25 parts of cold water, it is evident that hot water will readily dissolve 15 per cent. of boric acid, and precipitate a very large proportion on cooling, and, if purified cotton be treated with an equal weight of a hot aqueous solution of the acid of that strength and dried, it will, of necessity, contain 15 per cent. of the acid; a very desirable strength to insure its antiseptic properties. But in practice it will be found that cotton readily absorbs from about four to five times its weight of water; the exact proportions varying with the absorbency of the cotton, the quantities of antiseptic cotton made at a time, the manner of impregnating with the medicated solution, and the degree of subsequent expression. Hence it is better to make the water four or five times the weight of cotton used, impregnate in thin layers in a flat, open vessel, and express moderately, or in such a manner that after all the cotton has been treated there will be no medicating liquid left. Borated cotton thus prepared, has the acid intimately incorporated into its fibres, and is free from loose particles of crystals among its meshes.

Boric acid . .	80 gm. (2 oz. av. and 360 grs.)
Boiling water. .	1814 " (4 lbs. av.)
Absorbent cotton .	435.5 " (1 lb. av.)

Dissolve the acid in the boiling water, impregnate the cotton, express and dry by exposure to the air or slight heat. Borated cotton thus made contains exactly, in the finished product, 15 per cent. of its weight of acid. The use of a Trœmner solution balance will greatly facilitate the weighing of quantities in this, as well as in all other formulæ herein given.

Salicylated Cotton.—This is generally made 10 per cent. in strength, with water, alcohol, and a small proportion of glycerine to prevent the shaking out, after drying, of the crystals contained in the interstices of the fibres. The following is the formula used:

Salicylic acid . . .	57 gm. (2 oz. av.)
Alcohol	453.5 " (1 lb. ")
Hot water . . .	2268 " (5 " ")
Glycerine . . .	57 " (2 oz. ")
Absorbent cotton . .	453.5 " (1 lb. ")

Mix the acid, in a porcelain or Wedgewood mortar, with the glycerine, dissolve with added alcohol, place the solution in a large, flat, open vessel, and lay upon the surface of the liquid the cotton in thin layers. After standing for ten minutes in this liquid, and absorption is completed, remove, express, and lay aside to dry upon a frame. The method of expression may be with the use of the hands, but a better way is between the open rollers of a clothes-wringer so provided that they are not too tightly screwed together. Pilcher observes that the antiseptic qualities of this cotton may be still further enhanced if, before using, a thin layer of it be dipped in a 10 per cent. solution of the acid in glycerine, applying this to the wound first, and then following on top with a thick layer of dry salicylated cotton, sufficiently wide to extend beyond the outer limits of the wound on all sides.

PICRATE OF AMMONIA IN MALARIAL DISEASE.—DR. H. MARTYN CLARK, of the Amritsar Medical Mission, Punjaub, has treated no fewer than 10,000 cases of malarial diseases with picrate of ammonia, and in half the cases he has kept a record. In nine cases out of 5000 did the picrate fail, and in these quinine cured at once. The usual dose is from one-eighth of a grain to one and a half grains four or five times times a day in pill. Half a grain is a fair average dose. Thus given the result is soon visible. In the great majority of the cases treated, one-half grain doses in the interval prevented the recurrence of the next attack of the fever, while in about twenty per cent. of the patients two or three attacks followed before the fever ceased. In only one case of quartan ague, despite large doses of the salt, the fever recurred for six periods, gradually diminishing in intensity, and then yielded to it. It is equally successful in all the forms of ague, but it is a curious fact that the cases in which it failed to cure were all of the tertian variety. Dr. Clark has also employed this agent in the treatment of twenty-five cases of malarial neuralgia of various nerves, six cases of malarial headache, and one of malarial colic. In all these instances it cured completely and speedily. In addition to being cheaper and given in smaller doses, picrate of ammonia does not produce the unpleasant effects that quinine does, such as headache, deafness, tinnitus, etc.; nor does it, like quinine, disorder the digestion or cause nausea, as quinine does in India.—*Chemist and Druggist*, March 19, 1887.

THE MICROBE OF TYPHOID FEVER.—At a recent meeting of the Société des Hôpitaux, M. Chantemesse made an interesting communication concerning the morphological and biological characteristics of the typhoid microbe. The sporulation of this microbe takes place between 19° and 48° C. (67° to 104.4° F.). It develops in water, even if sterilized. At a temperature of 45° C. (113° F.) the cultivations live for several days; they are destroyed by boiling. This microbe retains its vitality in damp ground. Corrosive sublimate (1 : 20,000) and sulphate of quinine (1 : 800) destroy it. Carbolic acid (1 : 400) has no effect on it; hydrochloric acid is also inert; therefore, the acidity of the stomach is not inimical to this microbe.—*British Medical Journal*, April 9, 1887.

ORDINARY PRECAUTIONS IN THE CARE OF THE EARS.—HARTMANN, of Berlin, in a recent work on otology, gives the following advice:

Under ordinary conditions, the healthy ear does not need to be protected from cold; only during extreme cold or stormy or rainy weather ought cotton-wool to be inserted, into children's ears especially. The same precaution must be taken in the case of every ear predisposed to inflammation. All persons whose membranæ are perforated ought to protect their ears with cotton-wool. The entrance of cold fluids into any ear must always be prevented; and so, while bathing or diving, the ear ought to be plugged. Patients with perforations of the membrane should be very careful in this respect, as violent inflammation may be caused by the entrance of cold water.—*Bristol Medico-Chirurgical Journal*, March, 1887.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, APRIL 30, 1887.

CEREBRAL LOCALIZATION AND CRANIAL TOPOGRAPHY.

THAT the subject of cerebral localization is not only not exhausted, but that the threshold of its investigation has been scarcely more than passed, is indicated by the appearance of a paper of unusual interest, by VICTOR HORSLEY, in the current number of *The American Journal of the Medical Sciences*. This paper is modestly termed "A Note on the Means of Topographical Diagnosis of Focal Disease Affecting the so-called Motor Region of the Cerebral Cortex." It is a contribution which will prove equally valuable to the surgeon and to the neurologist, being a summary of the means adopted by the writer as topographical guides to definite portions of the brain. Its value consists largely in that it is not simply a review of the literature of the problem under discussion, but contains the results of experiment, observation, and of clinical and surgical experience.

Already to Horsley we owe not only valuable physiological and clinical work, particularly in connection with the subject of cerebral localization, but also to him, in large part, is due the credit of a few of the most brilliant operations that have been performed within the last few years, among which several cases of cerebral tumor successfully removed, after having been localized by the aid of the rules given in this paper, are notable.

Every one who has had to deal practically with the subject of cranio-cerebral topography knows something of the difficulties of exactly locating on the skull the relative position of the parts beneath, especially when those parts are of the dimensions of a fissure or of a single convolution. As useful as the older methods of Broca, Championnière, Seguin, and others have been, they have not fulfilled all the requirements of great exactness and easy adaptation. Horsley gives some new and valuable suggestions.

Taking up the surface markings of the head, he regards first the sutures, next the eminences, and lastly the temporal ridges, giving methods so simple and easy of application for recognizing and determining these landmarks that nothing is left to be desired. The importance of the temporal ridges is well shown. He recognizes two of these, the first or lower, marking the upper border of the attachment of the temporal muscle; the second or upper, marking the attachment of the temporal fascia. The ridge of the temporal muscle can be most readily determined by telling the patient to shut the mouth firmly. That of the fascia in the majority of instances can be felt by palpation. The methods of determining the coronal and parieto-squamal sutures as given are comparatively easy.

Horsley wisely, we think, adopts the plan of Thane, of University College, London, for locating the upper end of the fissure of Rolando. It consists in taking the length of the middle line of the head from the root of the nose to the occipital protuberance, and then by halving the result the centre of this line is obtained. The upper end of the fissure of Rolando will be found in adults to be situated half an inch behind this centre point. He describes a very simple instrument of soft iron, consisting of a ten-inch strip, one centimetre broad, from the middle of which branches off another strip about six inches long, the two making an angle in front of sixty-seven degrees. This instrument is used by placing the arm upon the middle line of the head, which has been previously marked; the angle between the arms is then made to coincide with the theoretical situation, according to Thane, of the upper end of the fissure of Rolando; and a line drawn from the anterior border of the short arm will give the situation of the fissure for the upper two-thirds of its course.

The limitation of the areas of the representation of movements of different parts of the body, in certain cerebral gyri, to which the paper of Horsley is confined, is very carefully described. The results of some new investigations by the author and several colleagues are given in various places.

An important fact and suggestion are contained in the following quotation: "It may be advisable, moreover, to point out that, as the representation of one and the same function may extend over and beyond this or that sulcus, as has been already mentioned, it is advantageous mentally to subdivide this region into horizontal levels, for the variation in the representation of the function will be found to be greatest in passing over the 'motor' area from above

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down. In other words, the nature of the function of the convolution bordering the longitudinal fissure is more different from the function of the convolution forming the upper edge of the Sylvian fissure, than is the function of the anterior third of the so-called motor region from the posterior third."

The area of the cortex for the representation of the movements of the face and throat is first carefully given. Dividing the brain horizontally, as above indicated, a line drawn through the lower end of the intraparietal sulcus and the genu of the fissure of Rolando bounds this district above, the fissure of Sylvius limits it below, and it extends from the precentral sulcus in front to a theoretical extension of the intraparietal sulcus to the Sylvian fissure behind. In the upper part of this facial area the movements of all the groups of muscles of the lower face are represented. The anterior third of the lower portion of this facial area is the seat of representation of the movement of complete adduction of the vocal cords, together with the associated movements of other parts of the throat; the hinder two-thirds is the seat of the representation of the opening and shutting movements of the mouth, with protrusion and retraction of the tongue and the floor of the mouth. The seat of representation of movements of the upper limb is just above the facial area. In front the upper limb region extends into the middle frontal convolution for about its posterior fourth. Behind it extends across the ascending parietal convolution. The shoulder is centred in the upper part of the area, the elbow next below and posteriorly, the wrist next below and anteriorly; the fingers next below and anteriorly; the thumb lower and posteriorly. Above this region for the upper limb, which has for its upper boundary the superior frontal surface sulcus, is first an area where representation of the upper limb and that of the lower limb are absolutely blended, a most interesting zone. The seat of representation of the lower limb only, the primary movement of which part is that of the hallux or great toe, is immediately in front of the upper end of the fissure of Rolando, but it is also continued over the margin of the hemisphere into the paracentral lobule.

That the paper of Horsley is a distinct advance in the work done in cerebral localization and cranial cerebral topography is shown in many ways; for example, in the attention which he pays to the relations of certain parts which ordinarily have been neglected by those who have written upon this subject. Thus, he shows the importance of the precentral or vertical sulcus as a cortical landmark, as it divides two convolutions of very different functions, and as it has on either side of it convolutions in which most extensive representation of movement exists. This sulcus, as a rule, reaches to about the centre of the fissure of Rolando, and from it diverges forward about opposite the superior temporal ridge. Horsley also shows the topographical value of various other sulci and convolutions which have hitherto received but little attention—the superior frontal, the inferior frontal, and the intraparietal sulci, the various frontal convolutions, and the marginal convolutions, for example.

Valuable as is the paper of Horsley, here and there are points which may be criticised, but they are only minor points. In speaking of the intraparietal sulcus or interparietal fissure, he does not indicate very clearly the most usual direction of this fissure, as well as its variations. He speaks of it soon after its beginning as tending to leave the fissure of Rolando, thereby forming the ascending convolution, the summit of which is widened so as to become the superior parietal lobule. He pays no attention to the so-called retrocentral fissure, which is so very constant in the human brain, and which is regarded by some as a secondary extension upward of the beginning portion of the interparietal fissure, and by others, as Wilder for instance, as a distinct fissure. In a foot-note, however, he says that the commonest line of the intraparietal sulcus has yet to be determined, and the real breadth of the ascending parietal gyrus consequently remains also unknown. It is possible also, it appears to us, that he takes somewhat too strongly the position that the mapping out of the localities of function has nearly all been done by the accurate observations of experiments on the lower animals. It seems scarcely strictly true, in view of the labors of Jackson, Charcot, and others, to say that we owe nearly all we know of the functions of the different parts of the cortex cerebri to experiments upon the lower animals.

The paper is illustrated by numerous diagrams, and by two photographs from cadavers, the first of these showing a head from which the scalp has been removed opposite the so-called motor region of the brain; the second, with the convolutions of the same region exposed, and both so marked as to indicate clearly the relations of certain fixed and detectable points and lines of the skull surface to the fissures, sulci, and convolutions beneath. The whole paper is an admirable illustration of a combination of scientific investigation and the adaptation of such investigation to strictly practical purposes, and will form an indispensable aid to all laborers in the field of cerebral topography.

THE TECHNIQUE OF ANTISEPTIC MIDWIFERY.

WHEN one recalls what Semmelweiss accomplished forty years ago in the Vienna Hospital, and when one reads of the condition of the Maternité before Tarnier was elected to its wards, and sees now the

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wonderful immunity from disease of the puerperal patients in that institution, it is not surprising that the means by which these extraordinary results have been accomplished have excited such great enthusiasm that their application has been carried to immoderate lengths. It was at one time possible, in some of the large lying-in hospitals of Europe, to witness the strange spectacle of a woman in labor, shorn of her pudendal hair, douched from time to time with strong antiseptic solutions, until finally the child emerged from the vagina, its outlines dimly discernible through a mist of carbolized spray, while an assistant, robed from neck to heels in a linen gown, stood ready to clap an antiseptic dressing over the vulva, which yawned to admit the invading hosts of deadly parasites with which the atmosphere was everywhere impregnated.

It is little wonder that there was a tardy acceptance on the part of general practitioners of the doctrine of the causative relation of pathogenic microorganisms to puerperal fever, for the admission of such a theory seemed to demand the adoption of preventive measures which were impossible of general application in ordinary practice. The reaction from these extreme measures soon began, however, as the conviction dawned upon the professional mind that the greater part of this germicidal artillery should be turned upon the physician rather than upon the patient or the infant just emerging from what had been an air-tight sac. This conviction has been steadily gaining ground, until now the technique of antiseptic midwifery has been so simplified that its adoption is easy under any circumstances, either in private or hospital practice. More and more is the disinfection of the attendants becoming the cardinal point, while the advantages of non-interference with the parturient and puerperal female are becoming every day more evident, unless, indeed, there should be some special indication for the energetic disinfection of the parturient tract.

Szabó reports in the last number of the *Archiv für Gynäkologie* the results obtained in the Lying-in Hospital of Buda-Pesth, where, of 2629 confinements, the deaths from sepsis numbered only 8, or 0.3 per cent., with this simpler system of antisepsis in obstetrics. In this hospital vaginal injections are not employed at all in ordinary cases, but the hands of the attendants are thoroughly disinfected with a corrosive sublimate solution, 1 : 1000; while a solution of half that strength is used to cleanse the external genitals of the patients.

It is important to call attention to the possibility of attaining excellent results in obstetric practice with very simple precautions against puerperal infection, for such knowledge must hasten the universal adoption of antisepsis in general practice, even in the country, where the boasted purity of the air is yet supposed to give immunity from puerperal fever, although the fallacy of this supposition has been frequently demonstrated. Every rural physician must fully realize that he, as well as his city brother, may at any time have touched a few drops of pus or decomposing blood; that he may have placed his hand upon an erysipelatous skin; upon the dried sputum of diphtheria; or upon a few flakes of the desquamated skin of scarlet fever, and that the next woman in labor who is unfortunate enough to have him as an attendant, may easily fall a victim to his want, not of ordinary, but of absolute cleanliness. With a knowledge of the dangers that surround a parturient woman, and possessing the means of neutralizing them to a great extent, it surely cannot be long before there will be no one so indifferent to the welfare of his patients as to subject them to risks that might easily be avoided by using the few and simple precautions that constitute the most recent and admirable plan of antisepsis in obstetrics.

HOW EARLY IS THE FŒTUS VIABLE?

Hitherto obstetricians have generally agreed that the fœtus is first viable when seven months of intrauterine life have been completed. It is true that in rare instances a fœtus born in the seventh month has lived—that is, before the generally admitted time of viability—but these exceptions were so rare that they were not regarded as invalidating the rule; indeed, a child born even at the completion of seven months has only a relative viability, its chance of living being much less than if birth had been dèlayed. Tarnier, in the second part of his work upon obstetrics, asserts that as a certain number of children born at six months, or six months and a few days, can by means of the couveuse and gavage be raised, the time when the fœtus becomes viable should be fixed at six months.

The method of gavage consists in feeding the child through a urethral catheter of red rubber introduced into the stomach. The frequency with which the operation is repeated depends upon the quantity of food taken, but in general two drachms of milk every hour will be advisable, if the infant is very small and much premature.

AN OLD TREATMENT REVIVED.

In the March number of the *Revue Médico-Chirurgicale des Maladies des Femmes*, we find it stated that Coupey has recently used a crayon of nitrate of silver placed in the uterus, as a remedy for metrorrhagia. This treatment was successfully employed by him in two cases, but the editor of the journal regards the method as very painful, and liable to cause dangerous pelviperitonitis.

This practice is by no means new, for it was

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employed twenty-five years ago, by the late Sir James Y. Simpson. Our own experience with it has been confined to a single case, in which its application was followed by such grave metroperitonitis that we never felt disposed to try it again. If the solid nitrate of silver thus left in the uterine cavity cures any cases of metrorrhagia, it is only one variety of the affection which is amenable to the remedy—that which is caused by fungoid disease of the endometrium, and surely there are other therapeutic plans less painful and perilous which may be followed.

THE President, in accordance with the provision made in the Sundry Civil Appropriation Bill, passed at the last session of Congress, has appointed Surgeon George M. Sternberg, U. S. A., to investigate the merits of inoculation for the prevention of yellow fever, as practised in Mexico and Brazil. The President is to be congratulated on having selected for his appointee a scientist who is in every way so admirably qualified to conduct the contemplated investigation.

THE Governor of Sonora last Tuesday telegraphed a denial of the existence of cholera in Mazatlan and Guayamas.

THE term of service of Surgeon-General Gunnell, as Chief of the Bureau of Medicine and Surgery of the Navy, expires in March, 1888.

THE Association of Genito-Urinary Surgeons has been recently formed, and will hold its first meeting at Lakewood, N. J., on May 17th and 18th, with Dr. E. L. Keyes, of New York, as temporary chairman, and Dr. R. W. Taylor, of New York, as Secretary. The Committee of Organization consists of the above officers with Drs. A. T. Cabot, of Boston; C. H. Mastin, of Mobile; J. N. Hyde, of Chicago; F. R. Sturgis, of New York; and J. W. White, of Philadelphia. The programme for the meeting includes a number of very attractive papers.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, April 13, 1887.

LEWIS A. STIMSON, M.D., IN THE CHAIR.

CASE OF REMOVAL OF BOTH PAROTID GLANDS.

DR. WYETH presented a patient from whom he had removed round-celled sarcomata of both parotids. [The case was reported at length by Dr. Wyeth, in a paper on "Ligation of the External Carotid Artery," published in THE MEDICAL NEWS of March 19, 1887, p. 313.] The main facts were as follows: Z. M., æt. forty-seven, began, about sixteen months ago, to notice enlargement of both parotids, which continued until her admission into Mount Sinai Hospital. She was strongly advised *not* to have an operation performed, and was told that, even if she survived, facial paralysis would result, but she insisted on being relieved. The right external carotid and superior thyroid were tied, and the neoplasm on the corresponding side was then dissected out. Three months later the more extensive growth on the opposite side was removed with great difficulty. The patient made a good recovery. A careful examination of both tumors was made by a competent microscopist, who pronounced them to be typical round-celled sarcoma. Attention was called to the fact that the patient had facial paralysis on both sides, more marked on the left. She could not close her eyes completely, but there was no keratitis. She was much troubled with dryness of the mouth, and had been advised to use olive oil, which had benefited her. There was no trouble about her nourishment, as she was restricted mainly to liquid diet. There was slight motion of some of the muscles on the left side of the face, but it was difficult to tell whether it was the group supplied by the motor branch of the fifth nerve, or those supplied by branches of the facial. The patient had no pain, and could talk very well.

In reply to a question from the President, Dr. Wyeth stated that the patient could chew without much difficulty, and was not obliged to push the food between her teeth with her fingers.

DR. ABBE asked if it was possible during the operation to distinguish the divided nerves at the edges of the tumors: could the opposite ends have been united by sutures, since the gaps left after the removal of the neoplasms could not have been very wide?

DR. WYETH replied that he saw the main branches of the facial nerves, but if he had stopped to suture the ends, the operation would have been prolonged, and there would have been no hope of the patient surviving.

CASE OF RUPTURE OF THE QUADRICEPS EXTENSOR TENDON; PERFECT RECOVERY AFTER SUTURING OF THE DIVIDED ENDS.

DR. MCBURNEY presented a patient who, two years before, had slipped while lifting a heavy packing-box from a truck; the edge of the box struck him just above the patella, causing a rupture of the quadriceps tendon near its insertion, but without any external wound. A transverse incision was made across the joint above the patella, and the capsule was found to be extensively lacerated on either side of the bone, while there was a quantity of coagulated blood within the joint-cavity. The fibrous fringes and the torn ends of the muscles were turned inward. The latter were excised, the rent in the capsule was closed with catgut, and the ends of the tendon were united and kept in close apposition by "quill-sutures," which were secured by doubled silver wire, passed through the edge of the patella. A plaster dressing was applied, and the wound healed quickly, the recovery of motion being slow, but eventually complete. Now, there was apparently no difference between the two limbs. The patient refused to allow the application of passive motion, yet the result had been perfect.

In reply to questions, he explained that the quills

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(which were pieces of rubber tubing) were placed transversely, one two inches above, and the other about two inches below, the incision; that the inverted fibrous strips lay upon the torn muscle; and that he had never heard of any record of a similar operation.

DR. MARKOE said that Dr. Weir had had two cases in which the lesion was the same as in the case described, and that he himself had observed one.

THE PRESIDENT remarked that he had had a patient who had long before ruptured both quadriceps tendons. Although reunion failed, the patient, who was a laboring man, was able to attend to his work. He could ascend a ladder by aiding himself with his hands, and keeping his knees extended, and could stand without difficulty, as long as he kept his legs straight, but as soon as he bent his knees he would fall.

DR. SANDS thought that the operation performed by Dr. McBurney was undoubtedly the proper one; he believed that it had been done before, and that Maydl had reported a successful case in the *Zeitschrift für Chirurgie*.

DR. MARKOE asked if the separation occurred close to the patella.

DR. MCBURNEY replied that it took place as near as possible to the bone; there was a gap of one and one-half or two inches between the patella and the torn end of the tendon.

DR. BRIDDON read the following paper on

EXTRAPERITONEAL RUPTURE OF THE URINARY BLADDER.

During my last service in the Presbyterian Hospital, in the city of New York, the two following complicated cases of rupture of the bladder came under observation:

Case I.—Reported by Dr. F. W. Shaw. The patient, a man thirty-three years of age, was admitted Sept. 3, 4 P. M. He was engaged, with several others, carrying a stone weighing 1600 pounds, when he fell accidentally, striking his right hip upon the ground. His companions losing control of the stone, it fell upon the right side of his pelvis. When seen by the ambulance surgeon, he was in a condition of very pronounced shock; there was a slight amount of blood oozing from the meatus urinarius. Examined one and a half hours after the accident, it was ascertained from the patient that he had emptied his bladder three hours before he was injured. There was a contusion of the right hip posteriorly, and an abrasion on the left; there were some dulness and fulness in the right inguinal region. He complained of pain and tenderness over the sacro-iliac junction and over the pubis. It was thought that when pressure was made over both ilia, that the right could be appreciably approximated to the median line. The introduction of a soft gum catheter gave exit to an ounce and a half of bloody fluid. A little later a silver catheter was introduced into the bladder. It was noted that its point did not rotate as freely as it should, and it gave exit to one ounce of the same kind of fluid.

Operation was performed by Dr. Briddon four and a half hours after the accident. Strict antiseptic precautions were used; the pubes and perineum were shaved, scrubbed, irrigated with solution of mercuric chloride, and then wiped over with an ethereal solution of iodoform. When under the influence of ether, an incision three inches long was made in the median line immediately above the pubes. When the subperitoneal fascia was exposed, its meshes were found infiltrated with blood; and on separating this with fingers and forceps, a large cavity was opened in the prevesical space. It was occupied by a considerable amount of bloody fluid that separated the anterior wall of the flaccid bladder from the posterior surface of the pubis. There was found an oblique fracture of the descending ramus of the left pubis, and a second fracture through the body of the right pubic bone; the bones were locked immovably, and their altered relations could not be restored; some small detached fragments were removed; the muscular and aponeurotic structures connected with the rami were torn, and there was no wound of the peritoneum. After careful and prolonged sponging, and the use of large retractors, it was possible to detect a long linear slit. Commencing in the upper and outer wall of the prostatic urethra, and passing up into the anterior wall of the bladder, it was estimated to be about one and a half inches in length. With some difficulty a silver catheter was introduced through the urethra and into the bladder, and was secured in position; a large rubber drainage tube was placed in the lower end of the abdominal incision; its point in contact with the laceration, and the remainder of the cavity was filled tightly with iodoform gauze. The patient was then placed in bed and surrounded with hot bottles. Temperature three hours after operation, 101° F.; reaction favorable.

4th. Temp. 100°. Considerable discharge through the gauze packing, which acts as an admirable drain. Several ounces of urine passed through the catheter, amber in color, acid, and slightly albuminous; contained granular and hyaline casts.

5th. Temp. 99°. General condition good; takes enough Magendie's solution to control what slight pain there is, and lithia water for a drink.

8th. Wounds dressed; the silver catheter was removed, and replaced by a rubber one; the prevesical wound was irrigated and filled with fresh gauze.

15th. No bad symptoms have presented; his general condition has steadily improved, but during the night the catheter failed to drain, and the urine overflowed through the wound above the pubes; on removing the catheter its lumen was found closed with calcareous deposits; it was determined to use the instrument only when a desire for urination existed.

23d. The bladder will now hold several ounces of urine, but unless the catheter is used frequently it will come through the wound; he complains of a good deal of pain in the penis, and especially in the corona.

Oct. 6. A small piece of semi-detached bone was removed from the right pubis.

19th. Two-thirds of the urine now passes through the urethra, the remainder through the abdominal wound; there is some irregularity or distortion in that portion of the urethra immediately anterior to the neck of the bladder, and it is deemed proper to introduce a conical sound every few days. The amount of urine passing through the wound gradually diminished, and finally ceased; he was discharged from the hospital in the last week in November. A small fistulous track leads from the lower end of the suprapubic incision downward and backward about three inches, and which will probably require a counter-opening in the perineum.

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This patient was then presented for examination seven months since the accident occurred. There is a small sinus in the lower end of the abdominal sinus that has not discharged anything for the past week. He was advised to pass a large-sized sound occasionally, to counteract a disposition to lateral deviation of the infrapubic urethra, caused by displacement of the pubic arch, and No. 29 F. passes with ease. He has had no erection since the accident and I am not surprised, for the damage done to the soft structures was very great, and has, probably, implicated the nerve supply.

Case II.—Reported by Dr. A. S. Hooker. Patient aged forty-two years, a native of Ireland, married; engine wiper; a man of large frame and marked muscular development; good previous history, except an addiction to moderate indulgence in alcohol. He was cleaning a locomotive on the elevated railroad, when another engine was backed down, the buffer of the moving engine striking him on his right hip, and throwing him into violent contact with the buffer of his own engine, which struck him upon the abdomen; he had emptied his bowels and bladder half an hour before the accident.

When seen by the ambulance surgeon, December 2, 1886, almost immediately after the accident, and on one of the coldest nights of the season, the patient was suffering from shock, and complaining especially of pain in the right hip. As it was impossible to make a thorough examination where he was, he was at once transported to the hospital, where he arrived at 10.10 P.M.

On admission, his condition had improved under the influence of stimulants. There were found abrasions over both ilia; pain referred to right hip-joint, and increased by movements imparted to the limb of that side; there were no signs of fracture of the cervix; he experienced a desire to urinate, but was unable to do so. A soft-rubber catheter passed between nine and ten inches, when, after slight resistance, it entered a cavity, and gave exit to three ounces and a half of dark, bloody fluid; some hypogastric distress he had complained of was relieved by this. On percussing the abdomen, a somewhat triangular area of dulness was made out, situated to the right of the median line, its base corresponding to Poupart's ligaments. Shortly after this examination, the patient again complaining of pain, the catheter was passed, and less than an ounce of bloody fluid came away; withdrawing the catheter slowly, a point was reached when the dropping ceased, and on again withdrawing, until the eye of the instrument was nine inches and a half from the meatus, there was again a discharge, drop by drop.

Operation performed at 2.30 A.M., by Dr. Briddon; the night was bitterly cold, and it was found impossible to make the temperature of the amphitheatre comfortable to those who were warmly clad, the patient was, however, well covered with blankets, except in the parts to be operated upon; he had been prepared by scrubbing, washing, antiseptic irrigation, and the local application of ethereal solution of iodoform, and was under the influence of an anæsthetic. A staff was introduced without any difficulty into the bladder, but did not rotate as in the normal condition; perineal section was made, and when the knife entered the bladder a gush of bloody fluid escaped; the finger was then passed in, but the depth of the perineum prevented more than the distal phalanx entering, and it was found impossible to explore thoroughly the cavity of the bladder; a Thompson's rubber lithotomy tube was introduced and secured in position.

The patient's position was now changed to admit of suprapubic section, an incision was made from a point four inches above, down to the symphysis pubis. When the subperitoneal layer was exposed it bulged into the wound, its meshes infiltrated with blood; on tearing this apart, a large cavity was opened, bounded below by the posterior surface of the pubes; above, by the parietal peritoneum. The contour of the intestinal coils could be seen through the serous tunic, and a suspicious appearance was noticed in the color of the peritoneum—it was purplish-blue, significant of blood within. There was no time, however, for exploration, nor was it considered proper to make the attempt in so cold a room. Attention was then directed to the prevesical space; the cavity opened into was filled with blood coagula and fluid; there was a fracture, with some displacement, one inch distant from the symphysis. After diligent sponging, and the use of retractors, the point of the rubber tube introduced through the perineum was found lying at the bottom of the cavity, and in the neck of the bladder, which lay contracted about the instrument. With some difficulty it was found that there was a rent in the anterior wall, and by the use of tenacula it was made out to be vertical in direction, and quite extensive; there was no wound of the peritoneum. A second Thompson's rubber tube was introduced through the abdominal wound down and into the rent, and it was packed around with iodoform gauze. The patient was then removed from the operating table to his bed; small long rubber tubes were connected with the large suprapubic and perineal tubes, and conveyed the secretions to vessels beneath the bed.

3d. Reaction favorable, general condition good, but slight complaint of pain; there has been considerable flow of bloody fluid by the perineal tube.

4th. Patient has complained much of thirst; fluid slightly tinged with blood is discharged through the tube in about proper quantity, acid reaction, sp. gr. 1.028, contains 50 per cent. albumen, some pus, and epithelial cells; wound cavities are irrigated three times a day with warm boro-salicylic solution. In the evening his temperature rose to 101°; complained much of pain, referred to the penis; moderate tympanites, considerable annoyance from eructations of gas; small doses of morphia are given, only sufficient to allay pain.

6th. Temp. 102° at 8 P. M. The tampons were removed from the suprapubic incision, and continuous irrigation was instituted.

7th. Patient was delirious through the night. His temperature rose to 103°, then fell to 98°; it then began to rise steadily until it touched 106°, shortly before his death at 4 P. M. on December 8.

It was considered very desirable to have an autopsy, but circumstances which could not be controlled by the staff interfered to prevent. It is extremely doubtful if he died from the effects of the rupture of the bladder, as the drainage was perfect, and there was an entire absence of sepsis in the wounds communicating with the same. The symptoms preceding death indicated blood poisoning, but there were sufficient grounds to regard it as more than probable that there were undiscovered lesions within the cavity of the unbroken peri-

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toneum to which it might be due. It will be remembered that it was noted during the operation that the color of the exposed peritoneum was bluish, such as would be caused by the presence of blood within the cavity; but as the operation was being done in an extremely cold room, and the indications were for its rapid execution, it was not deemed proper to prolong it by further exploration, but I have no doubt there were lesions in the abdominal cavity not recognized during life.

Simple extraperitoneal ruptures of the urinary bladder are generally caused by overdistention, due to obstruction in the urethra, either prostatic or from stricture. Factors aiding or predisposing to such accidents may be various pathological changes, ulcerations, tubercular or malignant herniæ, or, in fact, any other conditions that diminish the resistance of the walls. When under circumstances such as above referred to, the organ is in a state of repletion, it requires only a very small amount of violence, in the shape of concussion, as in lighting on the feet when falling; in injuries applied directly, as from impact with moving bodies; or in the not uncommon instances where rupture has been determined by contraction of accessory muscles in efforts to empty the distended organ.

In the cases which more directly concern us at present, those complicated with lesion of the bones entering into the composition of the pelvis, distention predisposes to rupture, but it may occur when the bladder is nearly empty, as in our second case, in which the patient distinctly asserted that he had emptied his bowels and his bladder half an hour before the accident occurred; and yet in his case, when the operation was done in less than four hours after the accident, and before he had recovered from the effects of shock, a condition in which very little urine is secreted, there was an escape of quite a quantity of bloody fluid when the perineal section was completed. In the first case it was presumed that the bladder was moderately distended, as the rupture occurred between three and four hours after urination.

The symptoms of rupture in the uncomplicated cases will vary extremely; generally something is felt to give way, either after the application of violence, or in the attempts to empty the bladder. This is generally followed by hypogastric pain and pronounced symptoms of shock, though in a number of recorded cases it is stated that the patients walked considerable distances to their homes, or to the institutions in which they were treated. It not infrequently happens that the cases are obscured by the accident occurring when the patient is under the toxic influence of alcohol. In such, on recovering from his debauch, complaint will be made of pelvic pain, and of the tormenting desire and inability to urinate. The condition will be determined by physical exploration, by percussion of the abdomen, digital examination through the rectum, bimanual palpation, the introduction of soft and metallic catheters, the former to determine whether the organ is empty or not. The latter may find nothing in the bladder, but it will probably be found that its movements are restricted. It may be possible in some cases to insinuate the point of the instrument into and through the rent, thus giving exit to urine that had escaped into the cavity of the peritoneum, or into the prevesical space of Retzius. If the rent is in the posterior wall, this manœuvre will be best made by using a short beaked instrument, such as the searcher of Sir Henry Thompson, which may be reversed when in the bladder. When the rent is in the anterior wall, it will be best accomplished by using a silver catheter with a large curve, and directing its point to the anterior wall of the bladder, by depressing the handle of the instrument between the patient's thighs.

A distinguished member of this Society brought a method of early diagnosticating intraperitoneal ruptures of the bladder before the profession,[1] in which he advocated injecting the bladder with an antiseptic fluid. It struck me that there are two objections to this procedure: First, that in the event of there being a rupture, it would diffuse the already extravasated fluid over a still larger surface; secondly, that it does not give reliable evidence of an intact bladder, inasmuch as there are several cases on record of intraperitoneal ruptures in which there was a fluctuant tumor in the hypogastric region resembling the distended bladder; and in some of these cases the size of the tumor was diminished by successful catheterism. The escape of a quantity of fluid equal to that injected would be more positive evidence.

In the cases of rupture complicated with fracture of the bones entering into the composition of the pelvis, there is generally an assemblage of symptoms which make the diagnosis comparatively easy. The accidents are the result of extreme violence; patient is in a condition of more or less profound shock; and when he begins to come out of this, his principal complaint will be a desire and inability to pass water. The introduction of a catheter will give exit to a small quantity of bloody urine. Further evidence can only be obtained either by waiting, to the great detriment of the patient, or by the prompt institution of explorative incisions, which can be utilized for drainage if rupture be found to exist. The treatment resolves itself into that for the treatment of extravasation, and the anatomical fact that there is no barrier to the extension of infiltration, external or internal, to the peritoneum, is a strong additional reason why the interference should be prompt and efficient.

My impression is, that it is best, first, to make a perineal section sufficiently free to permit of digital exploration of the bladder; that this should be supplemented by a suprapubic incision, carefully made, to open into the prevesical space, avoiding the peritoneum, unless it should be found involved. In these incisions I would arrange drainage-tubes of large calibre, so that their ends should meet in the cavity of the bladder, the upper tube being surrounded by a light tamponnade of iodoform gauze, which is itself an excellent capillary drain.

In connection with the paper he presented the patient upon whom an operation had been successfully performed. There still remained a small fistulous opening in the suprapubic wound.

He added, in conclusion, that the patient he had presented was troubled with a distressing symptom, viz., he had been unable to have an erection since the injury. He asked if any member of the Society could

[1] On a Satisfactory Method of Early Diagnosticating an Intraperitoneal Rupture of the Bladder, by Robert F. Weir, M.D. Medical Record, Jan. 22, 1887.

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suggest a remedy. He had himself advised the use of faradization, but the case appeared to be a hopeless one.

In reply to an inquiry, he said that the patient had sexual desires.

DR. WEIR suggested that the galvanic was preferable to the faradic current.

DR. BRIDDON thought the interrupted galvanic might meet the indications. There was some doubt as to whether the condition was due to a cutting off of the nerve supply, or to muscular paralysis.

DR. WEIR said that, although his experience had been limited, he would venture to criticise the practice of making the perineal opening first. He would first make the suprapubic incision, then carry the end of a pair of forceps through the infiltrated tissue, and cut upward upon it from the perineal side. He called attention to the fact that the method of detecting a rupture of the bladder, which he had suggested, was based on two points, the presence of increasing dulness in the hypogastric region from the gradual distention of the bladder, if uninjured, by the injected fluid, and the fact that the same quantity of fluid flowed out as was originally thrown it. Even if, in this test, some of the fluid did escape from the torn bladder, it would only give rise to an increased area of dulness over the hypogastrium, and would do no harm, as the surgeon would at once make his incisions for the proper drainage of the already extravasated urine.

DR. BRIDDON thought that the method suggested by Dr. Weir was not reliable, because there were so many cases in which the rupture was intraperitoneal. Heath and Rivington had been unsuccessful with it. The reader added that he did not claim much for the perineal section.

It was not performed in the case of the patient who recovered, because his condition was so bad that it did not seem to be justifiable. In the other case it was done as an explorative measure, and the opening could afterward be used for drainage.

The suprapubic operation was quite easy; as soon as the retroperitoneal fascia was reached, it bulged into the wound and was readily torn apart. There was no danger of opening the peritoneum. The reader reiterated his preference for the peritoneal section as an explorative measure, because in cases of extensive fracture, with great injury to the soft parts, it might not be advisable to make firm pressure over the hypogastrium, to aid in digital exploration.

THE PRESIDENT thought Dr. Briddon's experience showed that little was to be gained in the way of diagnosis by the perineal incision; he believed that, if it was made at all, it should be limited to a small opening for purposes of drainage. He had recently seen Dr. Keyes drain a bladder in this way after suprapubic lithotomy. A soft catheter was prepared by passing a needle, carrying a long piece of silk, into the eye, and out through the adjacent blunt end of the catheter. In the middle of the silk was a large knot, and the silk was drawn through until the knot stopped it. A long, narrow-bladed knife was passed into the membranous urethra, and along it, and then along the groove of the staff was carried an eyed probe threaded with the silk before mentioned. The end of the probe was passed into the bladder and drawn out through the hypogastric incision, and then, by pulling upon the silk, the end of the catheter was brought into the bladder. The other end of the silk hung out of the perineal wound and was used to withdraw the whole piece, the catheter being left in place.

DR. SANDS said that it was generally conceded that in cases of lithotomy the bladder could not be drained satisfactorily through the perineal wound.

DR. WEIR remarked that the bladder could not be drained through the perineal wound without a drainage tube being introduced through it, unless the lateral section had been made.

THE PRESIDENT said that in two of Dr. Keyes's cases the suprapubic wounds had closed and the bladder was perfectly drained from below.

DR. BRIDDON thought that if a perineal opening had been made in the case of the patient presented, the sinus would not have continued to discharge so long; in fact, it might still be necessary to perform that operation in order to cause its closure.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, April 7, 1887.

THE PRESIDENT, THOMAS M. DRYSDALE, M.D., IN THE CHAIR.

DR. B. C. HIRST read a paper on the etiology and treatment of cases of so-called

LATE INFECTION IN THE PUERPERAL STATE.

He related four cases of so-called late infection in the puerperal state, all due to the same cause, and yielding to the same treatment. The first case was a young primipara delivered without difficulty after a moderately long labor. She left her bed on the eleventh day, having had no fever, and having manifested no unusual symptom. Two days afterward her cervix was exposed to view by means of a bivalve speculum, and a slight laceration was discovered, healing by granulation. The following morning, the fourteenth day after delivery, the patient was unwell, her temperature was 102°; large doses of quinine were given, but the temperature rose to 103°, where it remained with slight morning remission for two days. A more careful examination being made, it was discovered that the uterus was unusually large, that the os was patulous, that there was a foul-smelling discharge, and considerable abdominal tenderness. The history of the case with these symptoms pointed to the retention of membranes, possibly a portion of placenta, and their subsequent decomposition, originated by the admission of air to the vagina and uterus by the use of the speculum. Acting upon this diagnosis, the uterine cavity was lightly scraped out with a dull curette, and a large quantity of decomposing decidua removed. This was followed by an intrauterine injection of bichloride of mercury through a Bozeman's double catheter. The woman's temperature at the time was 103°. The following morning it had sunk to 99°, and within twenty-four hours was normal, and so remained.

The second case was also a primipara. The labor was terminated by the forceps. Upon the eleventh day the woman, although perfectly well until that time, had a morning temperature of 101°, rising in the even-

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ing to 102°. The uterus was found larger than it should have been. The os was patulous, and there was a fetid discharge. Profiting by the experience gained in the first case, the uterus was curetted, and a considerable amount of decidua removed, and an intrauterine douche given. In this case the womb almost at once contracted, and the discharge ceased; but the patient had, unfortunately, an exacerbation of a tubercular trouble in one lung, which kept the temperature high for some days.

In the third case, also a primipara, after an instrumental labor, and an apparently normal lying-in period, the temperature rose, on the twelfth day to 99.8°, and on the following day to 100°. At the same time a fetid muco-purulent discharge made its appearance. In this case a very large quantity of decidual membrane was removed, and the scraping was repeated on the following day, whereupon the temperature fell to normal, and the discharge ceased.

The fourth case was a primipara, who, on the sixth day, after an easy labor, had a temperature of 100°, although previously there had been no fever; the uterus here was very large, the os quite patulous, but in this case there was not much discharge. The same treatment was employed that had proved successful in the other cases, with the result of reducing the temperature within twenty-four hours to normal, where it remained.

This experience is entirely too limited to enable one to come to a definite conclusion as to the cause of late infection in the puerperal state, but these cases suggest the possibility, at least, that the retention and subsequent decomposition of shreds of membrane or fragments of placenta will be found to be the most frequent cause of fever late in the puerperal state, and that if not interfered with this condition may lead to septicæmia and pyæmia. Other causes of fever late in the puerperal state are, of course, well known. Partially healed wounds of the cervix, vagina, and perineum may be torn apart, and the fresh wounds thus produced may give entrance to the germs of septicæmia. Exposure to an atmosphere impregnated with emanations from sewers or water-closets from bad sanitation, may give rise to febrile diseases at any time during the puerperium, as proved in the cases related by Dr. Playfair in a recent English journal. There is a possibility that the pyogenic microörganisms which may carry on their work in the uterine cavity without very serious consequences to the patient, may in the tubes manufacture their product, pus, in such quantities that it cannot be drained off, thus producing an abscess that may possibly open into the peritoneal cavity. There is a still more remote possibility that a pyosalpinx may be developed late in the puerperium by other pathogenic microörganisms, by those of gonorrhœa, of tuberculosis, or even those of actinomycosis. Finally, any of the febrile diseases that may attack a woman at any time may fasten themselves upon her during the lying-in period; but it seemed to the author that the most common cause of late infection in the puerperal state is the decomposition of retained membrane or fragments of placenta, and that, therefore, the curette and the intrauterine douche might be employed as a routine treatment in all cases where there occurs late in the puerperium, fever associated with a large uterus, a patulous os, and a foul-smelling discharge. This treatment can do no harm but may effect much good.

DR. HIRST then exhibited

THE ANTISEPTIC PAD

used by Richardson, of Boston, and Garrigues, of New York, to prevent the entrance of pathogenic germs to the vagina after labor.

DR. PARVIN was not impressed with the necessity for the antiseptic pad, believing that as good results could be had from antiseptic napkins. The oiled silk or muslin used in making it, it seemed to him, might hinder the ready escape of the lochia. After labor the vagina is practically a closed canal, open only for the egress of uterine discharge, and disease germs cannot enter unless that canal be opened by some manipulation of the nurse or the physician, as in giving a vaginal injection or in making an examination. It seems needless to close the vulva completely, and it also seems possible that such closure hinders the escape of the lochia. But be this as it may, if the vulva is carefully washed twice a day, with an antiseptic solution, and if napkins that have been wrung out of a 1 to 2000 corrosive sublimate solution are applied over it, changing them more or less frequently according to the amount of the flow, he thinks as good results can be had as by using the antiseptic pad. Moreover, it seemed to him doubtful whether antiseptic pads, though they have proved very useful in maternities, will be readily accepted in private practice, especially in the country.

The liability of glass to break is to him a conclusive argument against the use of tubes of this material. The best instrument, he believes, is Bozeman's catheter. Formerly it was his custom to wait in cases of septic infection until the flow was offensive, and then at first to endeavor to correct the condition by vaginal, before resorting to uterine, injections. He now knows that is wrong, for the patient may perish or have a protracted illness, and then make but partial recovery without the lochia at any time having an offensive odor. Within a year he has seen in hospital practice, and in consultation, eight cases of septic infection where the happiest results were promptly had from antiseptic solutions injected into the uterus. Most, if not all, of these patients probably would have recovered without these injections, but their recovery, judging from similar cases previously observed by him, would have been slow, possibly imperfect, and after a more or less prolonged period of suffering upon their part, and of anxiety on the part of the practitioner. We have in antiseptic uterine injections the essential, and the almost invariably successful treatment of puerperal septicæmia, if this treatment be begun soon enough, and properly carried out.

DR. T. M. DRYSDALE, while conceding the importance of antiseptic precautions in hospital, thought the advantage of these measures in private practice more difficult to prove. Until he relinquished obstetric practice in 1874, he had met with but five cases of puerperal fever in over two thousand deliveries, and in none of these women were any antiseptic precautions used, other than cleanliness, as they were not then known.

DR. LONGAKER believes with Dr. Hirst in the great utility of intrauterine post-partum medication. He has the greatest confidence in iodoform as used by Ehrenderfer, of Vienna, in the form of 100 grain pencils. One

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of these is introduced into the cavity of the womb after irrigation, it dissolves very slowly, and continues to medicate the entire utero-vaginal canal for forty-eight or seventy-two hours.

In removing shreds of membrane, after labor at term, or after an incomplete abortion, he uses the finger, and prefers it to any form of curette he has used. Theoretically he would prefer a glass tube for intrauterine irrigation, chiefly for the reason that it is more easily cleansed and kept clean. Hitherto he has always used the Bozeman canula, the only objection to which is the difficulty of cleansing, and hence a possible danger of carrying sepsis from one case to another.

DR. BAER emphatically endorsed what had been said in favor of Bozeman's tube for intrauterine irrigation, and against the glass tube. The return current is sure, and the small size of the instrument as compared with the glass tube renders the introduction easy and safe.

Regarding the pad exhibited by Dr. Hinst, if he believed the theory that the atmosphere is constantly impregnated with germs which poison whenever they come in contact with open vessels, he would certainly advocate the use of an impervious covering for the vaginal orifice. For the theory teaches that where there is no contact with the air there can be no sepsis. But he does not believe this fully; therefore he thinks it safer to place the napkin under and not over the vulva, so as to permit as perfect drainage as possible, thereby giving free exit to the lochia by making of the vagina a drainage tube, its natural function after parturition.

DR. HIRST remarked that the pads were used dry by Dr. Richardson, and moist by Garrigues.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 21, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

THE PRACTICAL VALUE OF OUR PRESENT METHODS OF TREATING THE UPPER AIR-PASSAGES.

DR. FRANCKE H. BOSWORTH said that notwithstanding the most ingenious mechanical devices, it is a fact that no case of chronic laryngitis has ever been cured by topical applications. The views of laryngologists have greatly changed within the last few years, and they have long since outgrown the notion that chronic laryngitis is either of tubercular or syphilitic character. The truth is, that non-specific chronic laryngitis is merely secondary to affections of the parts above.

As to applications to the lower pharynx, they are of no service whatever, and this part of the anatomy does not even belong to the air-passages at all, but to the food-tract. The vault of the pharynx is the seat of certain morbid changes which have been supposed to constitute naso-pharyngeal catarrh. The excessive secretion which is fancied to be characteristic of the condition, however, is an absolute myth. There is, in fact, diminished secretion (the secretion, however, being perverted, so that it becomes thick and inspissated to a degree that it is not removed by the ordinary efforts at expectoration), and the indication is not for astringent applications to the pharynx, but for some means of treatment which reaches the nasal passages. Topical treatment here, therefore, is of no use, and in such conditions as hypertrophy of the pharyngeal tonsil no local measure is of any service, except to act as a palliative. As to nasal catarrh, it is not a hypersecretion to be cured by astringents. These have all been tried to the fullest extent, and found to be of no avail. The essential symptoms are due to conditions which interfere with the great function of exosmosis of serum, and douches and sprays have never yet cured inflammatory conditions of the upper air-passages, although such applications are undoubtedly of more or less use. The nasal douche has attracted a great deal of attention of late years, and its dangers, as well as its benefits, have been vastly over-estimated. Inhalations have fallen into disuse, and the spray is now deservedly considered the most prominent means of local treatment. It is undoubtedly of great assistance as a cleansing and palliative measure, but is nothing more than this.

As to any special value to be attached to any particular form of apparatus, there is none. Compressed air is supposed to possess superior advantages for the spray, and the moral effect of the various devices resorted to for employing this agency is undoubtedly good; but with an instrument which can be purchased for a dollar and a half as perfect a spray can be made as with the most elaborate machinery costing hundreds of dollars. Millard's atomizer, he thought, is the one which is most convenient and serviceable. The curative treatment of affections of the upper air-passages, however, consists in treatment of the nasal tract by the removal of obstructive lesions, whether bony or of other nature, giving rise to nasal stenosis; and this is to be accomplished by the snare, the saw, the knife, or the cautery.

The object sought to be secured by the use of the cautery is not destruction of tissue. In hypertrophic disease the process involves principally the connective tissue, and the essential feature of chronic rhinitis is a chronic hyperæmia of the bloodvessels, with increased nutrition of the part. The local effect of cocaine is to produce anæmia, and, having reduced the existing turgescence with this agent, a mild caustic which will have very much the action of a film of collodion, should be applied. There is nothing so good for this purpose, in his opinion, as chromic acid; a few crystals of which laid upon the parts destroy the superficial layer of the membrane, converting it into a slough which adheres closely to the surface for three or four days, holding it down, as it were, and preventing a return of the turgescence. This simple method by chromic acid is greatly to be preferred to the galvano-cautery, enabling us to accomplish, as it does, all that can be effected with this complicated apparatus in a manner much more satisfactory in every way. The subject of neoplasms, he said, did not properly come under the present topic of discussion. Acute catarrhal inflammation of the nasal passages is merely a symptom of chronic rhinitis, and, as it can be readily eliminated by means of cocaine, did not require further consideration.

In speaking of our methods of examination, he said that the value of the laryngoscope, as generally employed, is greatly overestimated, and that neither in Tobold's nor Sars's instruments is there any optical principle involved. A small head-mirror, with a good

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light, answers every purpose perfectly well. Laryngologists had ceased to treat by means of machinery when they learned how to treat their cases successfully; and he quite agreed with the sentiment expressed by Dr. Daly at the meeting of the International Congress at Copenhagen, that the sooner they ceased to be throat doctors and became throat surgeons, the sooner would they achieve success in their specialty.

Dr. Andrew H. Smith, while expressing his belief in the efficacy of topical applications in many more or less acute conditions, said that in long-established cases of what is known as chronic catarrh, there were serious doubts in his mind as to the advantage of any local treatment which had as yet been devised.

Dr. Wm. H. Thomson said that in his opinion the treatment of chronic disease of the upper air-passages should be directed by two principles. The first of these is the taking cognizance of the cutaneous nerves liable to be concerned in the trouble, and the second, local disinfection.

There are very few vaso-motor tonics, and there are none which compares with cold as a remedial agent. It is very useful to apply cold water to the nape of the neck on rising in the morning, especial care being taken that the hair should not become even dampened. Sponging of the throat is also excellent, and these cold applications should be kept up for a long period of time. The back of the neck and shoulders should also be well rubbed with olive oil. The second indication is to protect the cutaneous surface against exposure.

The second principle of treatment is local disinfection. For this purpose our methods are at present both crude and defective.

It is undoubtedly true that a considerable number of cases are to be attributed to malformations, either natural or acquired; but in those which are not, it is important to know what agents ought to be used. In his opinion, the carbolic acid class, including all coal tar derivatives, are best for the suppurative diseases. In necrotic cases, on the other hand, remedies of the chlorine group, including bromine, iodine, and sulphur, are indicated, and insufflations into the pharynx of bismuth and calomel have long been used.

Dr. H. Holbrook Curtis spoke of the great value of chromic acid, which for some time past he had used to the exclusion of all other escharotics. When this is applied to the turgescent or hypertrophied turbinated bodies, it not only has a most marked beneficial effect upon the parts immediately concerned, but also the vocal apparatus of the patient. Hence, such applications are of special service to singers, actors, and others obliged to use the voice in public. This is a reflex effect, and there can be no doubt that there is a distinct correlation between the turbinated bodies and the larynx. In illustration of this point, Dr. Curtis related the case of a prominent operatic prima donna who had presented herself at his office with a slightly congested condition of the vocal bands. He applied chromic acid to the turbinated bodies, and there was at once a marked improvement in the voice. So much pleased was the patient with the effect thus produced, that, on two occasions afterward, she came on from Philadelphia between her performances, expressly to have the application made; and whenever he repeated it, it was always successful in restoring the lost brilliancy of tone. His practice is to apply the agent in crystallized form by means of a flat copper applicator, and afterward wash off the parts with Dobell's spray. No bad results from the use of chromic acid have ever been published. In conclusion, he remarked that the sooner the farce of applying strong astringents and other baneful agents to the larynx is abandoned the better it will be for all concerned.

Dr. Wm. Chapman Jarvis thought it most judicious to pursue a middle course. The spray he had always found a very useful means of treatment when it was properly employed. Cocaine could be applied more efficiently by means of the spray than in any other way. When thus used it produced anæmia of the mucous membrane at once, and it was always noticeable that in painful conditions there was a return of the pain just as soon as the anæmia thus caused disappeared. If the cocaine spray is kept up for a considerable length of time with a small tube, we get beneficial results which can be obtained in no other way.

There is, however, a certain proportion of cases in which cocainization cannot be produced, and in these the application of rhigolene is to be preferred when highly congested growths of the turbinated bodies are to be operated upon. A few seconds are all that is necessary to produce profound rhigolene anæsthesia, and if a thick covering of any suitable unguent is made use of to protect the parts during the operation, the application of this agent is not attended with any unpleasant results.

The spray is also very useful for cleansing purposes. With a coarse spray all the advantages of the douche can be obtained, while the hearing is not endangered, as is sometimes the case when the latter is employed. He is in the habit of using ten pounds pressure with a tube one-eighth of an inch in diameter for a coarse spray, and with a tube of extremely small diameter for a fine spray. There is no method yet devised by which powders can be so satisfactorily applied to the upper air-passages as by means of compressed air. When suitable agents are applied in the infinitesimally divided condition which is possible by this method, they are soothing in effect; but when powders are used in any other way they are always irritating. As regards powders, however, there is only one that is tolerated by the upper air-passages, and that is iodoform. Even boracic acid or bismuth is not well borne, as can be readily tested even by any one whose nasal mucous membrane is in a normal condition.

As to caustics, he believes that both chromic acid and nitrate of silver serve a useful purpose in certain conditions. Chromic acid, however, he thinks, should never be applied for turbinated turgescence and hypertrophy. It is very slow in its action when thus employed, and though it probably eventually removes the hypertrophy, provided the patient and the physician both have patience enough, he considers it a very treacherous kind of drug. But for papilloma, especially of the larynx, it is to be regarded as a real specific. As regards the mucous membrane of the rest of the upper air-passages, he strongly doubts its efficacy. Nitrate of silver has its uses. Although its action in the larynx, as lauded by Horace Green, is no doubt exaggerated, it is still of considerable service in subacute laryngitis.

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It is an especially useful caustic for mucous patches, which disappears under its protecting agency. Dr. Jarvis said he used the term protecting advisedly, as its characteristic action is to cling to the tissue until they heal, and no other agent will accomplish this purpose so well. That ulcers of the mucous membrane need some such protection as this he had demonstrated by covering one within easy reach with a little rubber cap. It at once showed a tendency to heal; but when the rubber cap was left off, it returned to the same condition as at first.

As to surgical procedure, compared with other methods of treatment, he thought it a well-established fact that it is not really worth while to keep on making topical applications for an indefinite period of time, when at a single sitting we can remove the whole trouble. What then is the use of worrying with chromic acid, nitrate of silver, or the galvano-cautery? The problem to be solved is merely a question of nasal drainage; and he claimed that there is not a hypersecretion, but that the trouble present is due to distortion of the nasal planes and gutters. The so-called hypersecretion results simply from accumulation, and when the nostrils are permitted to be flushed by the natural secretions, this entirely disappears. The indication is, therefore, to remove all existing obstruction.

In conclusion, Dr. Jarvis made some remarks upon atrophic rhinitis, stating that when a cure cannot be effected, great relief can be given by means of thorough cleansing and the use of unguents, especially vaseline, applied in the form of spray. In this manner patients whose life has been a burden often for ten or fifteen years, on account of the intolerable stench attending the condition of the nasal passages, have, by the simple use of the detergent douche and vaseline, been enabled to go once more into society without rendering themselves offensive to all around them. This practically constitutes a cure in this incurable dry atrophy of the nasal passages.

CORRESPONDENCE.

PREVENTION OF ARTERIAL HEMORRHAGE.

To the Editor of THE MEDICAL NEWS,

SIR: In the issue of THE MEDICAL NEWS for April 23, 1887, there appears an abstract of a paper copied from the *Lancet-Clinic* of April 2, 1887, entitled "A Simple Method of Preventing Arterial Hemorrhage," by Dr. Muscroft, of Cincinnati, which was successfully used in an amputation at the hip-joint, and a high amputation of the arm for elephantiasis.

"He proposed to pass a strong pin or needle under the femoral vessels *en masse*, high up in Scarpa's triangle, and then by winding a cord around the exposed ends of the needle, protected by corks, in a figure-of-eight turn to secure sufficient pressure to occlude the artery completely."

In the *Archiv für klin. Chirurg.*, Bd. 26, Heft 4, Prof. Trendelenburg, of Rostock, reports the following method for the avoidance of hemorrhage in hip-joint amputations: "A steel rod thirty-eight centimetres long, six millimetres broad, biconvex on section, and two millimetres thick at the centre, with blunt edges, but provided with a removable lance-shaped point three centimetres long, is passed obliquely through the soft parts in front of the joint, in the same way as the two-edged knife in the well-known method of Lisfranc, only about two centimetres higher. The rod enters, therefore, about four centimetres below the anterior superior spinous process of the ilium, passes between the femur and the femoral artery, and emerges at the fold of the scrotum. The point is now removed, and an elastic tube or band firmly wound in a figure-of-eight fashion round the ends of the rod and passing in front of the thigh" (*Amer. Journ. Med. Sciences*, April, 1882, pp. 582, 583).

It will thus be seen that the procedure of Dr. Muscroft is identical in principle with that of Trendelenburg. On the 13th of June, 1882, I amputated at the hip-joint successfully, according to the method of Trendelenburg, and reported the same in *The American Journal of the Medical Sciences* for October, 1882, p. 394. I also exhibited the instrument above described to the surgical section of the American Medical Association at its meeting in Washington in 1884.

THEODORE R. VARICK, M.D.,
Surgeon to Jersey City Hospital,
Medical Director and Surgeon to St. Francis Hospital,
Jersey City, N. J.

NEWS ITEMS.

MONTREAL.

(*From our Special Correspondent.*)

ROYAL VICTORIA (JUBILEE) HOSPITAL.—Two of our millionaires, Sir George Stephen, Bart., and Sir Donald A. Smith, have announced that it is their attention to build and endow a hospital in honor of the Queen's Jubilee. This hospital is to be for purposes of medical education and the training of nurses as well as for the treatment of the sick poor. Each gives the magnificent sum of $500,000—of this, $250,000 is to build the hospital and $750,000 to endow it. They have requested the city to donate to them unconditionally a lot of land situated at the base of the mountain on which to build the hospital, as this is the only favorable site they have been able to find. The City Council have favorably received the request. The details of the scheme have not yet been disclosed, but it is believed that the appointment of the medical and surgical staff will be made specially in the interests of medical education.

CONTINGENT FUND FOR THE WISCONSIN BOARD OF HEALTH.—The Assembly of Wisconsin has passed a bill appropriating $15,000 as a contingent fund to be used, if necessary, in the next two years, by the State Board of Health, in preventing the introduction of cholera into that State.—*Sanitary News*, April 16, 1887.

MASSACHUSETTS GENERAL HOSPITAL.—Professor R. H. Fitz has been appointed visiting physician to this hospital, *vice* Professor Francis Minot, resigned.

THE ASSOCIATION OF GENITO-URINARY SURGEONS will hold its first annual meeting, at the Laurel House, Lakewood, N. J., on May 17 and 18, 1887.

The following papers are announced in the programme:

Address of Welcome, by the temporary Chairman, Dr. E. L. Keyes.

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Connection between Masturbation and Stricture of the Urethra, by Dr. S. W. Gross, of Philadelphia.

On Chancroids, by Dr. F. B. Greenough, of Boston.

On Horny Growth of the Penis, with Exhibition of a Remarkable Case, by Dr. J. H. Brinton, of Philadelphia.

Suprapubic Cystotomy for Vesical Tumor and Large Calculus, with Comments upon Suture and a Suggestion for Drainage, by Dr. E. L. Keyes, of New York.

Case of Hysterectomy for the Relief of Pyelitis from Obstruction, by Dr. A. T. Cabot, of Boston.

On the Choice of Operation for the Removal of Vesical Calculus in Cases Complicated by Prostatic Obstruction, by Dr. J. P. Bryson, of St. Louis.

Idiosyncrasy as Affecting the Specific Treatment of Syphilis, by Dr. P. A. Morrow, of New York.

Observations on the Use of Oil of Wintergreen in the Treatment of Gonorrhœal Rheumatism, by Dr. R. W. Taylor, of New York.

Some Cases of Pyelitis in which Frequent and Painful Micturition was the Chief Symptom, by Dr. George Chismore, of San Francisco.

On Temporary Overstrain of the Bladder Producing Chronic Retention of Urine, by Dr. F. N. Otis, of New York.

Early Syphilitic Epididymitis, by Dr. J. N. Hyde, of Chicago.

Prostatotomy for Obstruction: Two Cases, by Dr. A. T. Cabot, of Boston.

A Plea for the More General Use of Nitrate of Silver in the Deep Urethra, with an Improved Instrument for its Application, by Dr. E. L. Keyes, of New York.

A Rare Form of Septicæmia, following Operation for Urethral Stricture: Septicémie Foudroyente Gazeuse, by Dr. R. W. Taylor, of New York.

Exhibition of Sections of Tubercular Testes with Bacilli, and of the Coexistent Bacilli in the Sputum, by Dr. R. W. Taylor, of New York.

The American Climatological Association will hold its fourth annual meeting in Baltimore, on Tuesday and Wednesday, May 31st and June 1st.

The State Medical Society of Arkansas will hold its twelfth annual meeting in Little Rock, on Wednesday, Thursday, and Friday, June 1st, 2d, and 3d.

The Ontario Medical Association will hold its seventh annual meeting in Toronto, on Wednesday and Thursday, June 8th and 9th.

The Best Type and Colors for School Books.—The following is the advice of Dr. Turner, Director of the Museum of Hygiene of the United States Navy, in his annual report:

Without entering upon an extended notice of this section of sanitary science, leaving out for the present the consideration of the school-house, a note here appears necessary concerning the hygiene of the eyes of school children. Some German sanitary observers in this direction have condemned the dark slates now in use on physiological grounds, and on the same grounds have suggested the use of white slates with dark pencils. Taking these premises, with the results of some personal experience and observation in determining ranges of vision, as well as of the color-sense, the writer is led to suggest that a uniform "face" of type, as *antique*, be adopted for school books, and that the traditional black printing ink be abandoned for inks of neutral tints in printing such books.

This accepts a proviso that the paper remains as now—white and unglazed. How far sharpness of definition of letters can be secured by such color use, the printer can determine. Further observations may support the correctness of these suggestions; that there is a strain upon the nervous apparatus of vision in the reading of books as printed at present (black on white) is an accepted fact; that this strain is a cause of asthenopia, is also well made out, and that the apparatus of accommodation in the eye is affected, follows as a consequence. This strain, expressed in ordinary language as "tired eyes," is relieved by letters printed on tinted paper, and by colored printing inks on white or colored paper; and thus a circus poster, from these facts, oftimes contains more refreshing reading, in a hygienic as well as a mental sense, than some newspaper or books. It needs but the simple statement, in this consideration, that glaring colors are always to be avoided. —*Chicago Journal and Examiner*, March, 1887.

Dr. Lewis Sayre's Clinical Lectures on Orthopædic Surgery have been translated into French by Dr. Henri Thorens.

The Celebrated Greek Scholar, Dr. Ernst Curtius, who is seventy-three years of age, recently left Professor Schweigger's Hospital, after a successful operation for cataract.

Analysis of "Temperance Drinks."—The chemist of the Massachusetts State Board of Health has recently analyzed a large number of so-called temperance drinks, and has found that all of them contain alcohol, one of them containing as much as 44.3 per cent. Several of them contain more than 40 per cent., and a very large proportion more than 20 per cent. One of these is said by its manufacturer to be "a purely vegetable extract, stimulus to the body without intoxicating." "Inebriates struggling to reform will find its tonic and sustaining influence on the nervous system a great help to their efforts." This preparation was found to contain 41.6 per cent. of alcohol.

Tonics.

Carter's Physical Extract, Georgetown, Mass., 22 per cent.

Hooker's Wigwam Tonic, Haverill, Mass., 20.7 per cent.

Hoofland's German Tonic, Philadelphia, 29.3 per cent.

Hop Tonic, Grand Rapids, 7 per cent.

Howe's Arabian Tonic, New York, 13.2 per cent.

Jackson's Golden Seal Tonic, Boston, 19.6 per cent.

Liebig Company's Coca Beef Tonic, New York, 23.2 per cent.

Parker's Tonic, New York (advertised as without stimulants), 42.6 per cent.

Schenck's Sea Weed Tonic, Philadelphia, 19.5 per cent.

Bitters.

Atwood's Quinine Tonic Bitters, Boston, 29.2 per cent.

Atwood's Jaundice Bitters, Portland, 22.3 per cent.

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Baxter's Mandrake Bitters, Burlington, 16.5 per cent.
Baker's Stomach Bitters, New York, 42.6 per cent.
Brown's Iron Bitters, Baltimore, 19.7 per cent.
Burdock Blood Bitters, Buffalo, 25.2 per cent.
Carter's Scotch Bitters, Georgetown, 17.6 per cent.
Colton's Bitters, Westfield, 27.1 per cent.
Drake's Plantation Bitters, New York, 33.2 per cent.
Flink's Quaker Bitters, Boston, 21.4 per cent.
Goodhue's Bitters, Boston, 16.1 per cent.
Hartshorn's Bitters, Boston, 22.2 per cent.
Hoofland's German Bitters, Philadelphia (claimed to be free from all alcohol), 25.6 per cent.
Hop Bitters, Rochester, 12 per cent.
Hostetter's Stomach Bitters, Pittsburg, 44.3 per cent.
Sulphur Bitters, Boston (contains no sulphur), 20.5 per cent.
Langley's Bitters, Boston, 18.1 per cent.
Mexican Tonic Bitters, Boston, 22.4 per cent.
Porter's Stomach Bitters, New York, 27.9 per cent.
Bush's Bitters, New York, 35 per cent.
Sherry Wine Bitters, Wakefield, 47.5 per cent.
Cinchonia Bitters, Providence, 13.1 per cent.
German Bitters, Concord, 21.5 per cent.
Strengthening Bitters, New Bedford, 29 per cent.
Old Continental Bitters, Lynn, 11.4 per cent.
Walker's Vinegar Bitters, New York, 6.1 per cent.
Warner's Safe Tonic Bitters, Rochester, 35.7 per cent.
Warner's Bilious Bitters, Boston, 21.5 per cent.
Wheeler's Tonic Sherry Wine Bitters, Boston, 18.8 per cent.
Wheat Bitters, New York, 13.6 per cent.
Faith Whitcom's Nerve Bitters, Boston, 20.3 per cent,
Williams's Vegetable Jaundice Bitters, Lowell, 18.5 per cent.—*Boston Med. and Surg. Journal*, March 10, 1887.

DR. CHRISTOPHER JOHNSTON, of Baltimore, has recently, in an address delivered before the Alumni Association of the University of Maryland (*Maryland Med. Journal*, April 9, 1887), given the following new illustration of the old adage that there is nothing new under the sun. Dr. Chassaignac, in 1850, revived the drainage tube, and claimed its discovery. But this valuable instrument had a much higher antiquity, since its employment was regarded as an "easy remedy" one hundred years before. Thus it is related in the *Country Housewife's Family Companion*, by W. Ellis, farmer, London, 1750: "How a person's wounded thigh was cured by a most easy remedy." "Now it happened, that in this interim of time, Mr. Edward Thome, a butcher, of great dealing, living at Little Gaddesden, in Hertfordshire, and who killed all or most of the Duke of Bridgewater's beasts for his numerous family, had a violent scorbutick humour broken out in his thigh, that so lamed him, as to necessitate his having recourse to a professed surgeon, but notwithstanding his application Mr. Thome was still in a very painful sad condition; in so much that the late good Scroop, Duke of Bridgewater . . . seeing this man (his butcher) in a very decrepit condition, asked him what was the matter? He told his Grace how lame he was by a wound in his thigh, and that he was hardly anything the better for what his surgeon had done for him. Upon this the Duke offered to give him his letter for carrying it to London, and to wait on that celebrated surgeon the late Mr. Bouchier, for his advice; for you must know that this person was so skilful as to be encouraged (as I am informed) by a large yearly salary from government, for giving his advice gratis to his Majesty King George the Second's subjects; and abundance of service he did to great numbers of people, amongst whom was this Mr. Thome, who, when he had presented him the Duke's letter, and seen his wound, asked him who was his surgeon? He told him. Says Mr. Bouchier, go tell him he is a blockhead, for proceeding thus in a wrong manner, and bid him get a black-lead pipe thrust into the wound, there to remain for the pus to evacuate through it, and as the wound heals it will push out the pipe by degrees, which must from time to time have its end clipped off with a pair of scissors, lest the shirt catch it and tear it out, for no salve will affect this sort of wound.

. . . . . .

"N.B.—The black-lead pipe was at first four inches in length, with a hole in the middle of it, a little bigger than that of a common tobacco-pipe, and of its shape, which, by the help of a bandage, kept in the wound, till it descended by leisure degrees, and was diminished by frequently clipping of, till the cure was perfected."

LEPROSY AMONG NORWEGIAN IMMIGRANTS.—The Norwegian Government has taken another step toward discovering the origin and nature of leprosy, which is so common on the west coast of Norway, by dispatching Dr. G. A. Hansen, Director of the Leprosy Hospital at Bergen, to North America, for the purpose of inquiring into the heredity of the disease among Scandinavian emigrants to the United States.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 23, 1887.

RUSSELL, A. C. H., *Passed Assistant Surgeon, U. S. N.*—Ordered to duty at Naval Laboratory, New York, May 2, 1887.

HEFFENGER, A. C., *Passed Assistant Surgeon, U. S. N.*—Ordered to Widows' Island, Me., to superintend building a naval hospital, wharf, and other improvements under instructions of the Surgeon-General of the Navy.

WOODRUFF, CHARLES E., *Assistant Surgeon, U. S. N.*—Resignation accepted, to take effect April 8, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 19 TO APRIL 25, 1887.

SMITH, J. R., *Lieutenant Colonel and Surgeon.*—By Par. 8, S. O. 92, A. G. O., April 21, 1887, detailed as member of board to meet in Washington, D. C, April 28, to prepare rules and regulations for the government of the Hospital Corps of the Army.

HEIZMANN, CHARLES L., *Major and Surgeon.*—By Par. 8, S. O. 92, A. G. O., April 21, 1887, detailed as member of board to meet in Washington, D. C., April 28, to prepare rules and regulations for the government of the Hospital Corps of the Army.

TAYLOR, MORSE K., *Major and Surgeon.*—Relieved from duty at Fort Sill, I. T., May 10, 1887, to proceed home, San Antonio, Texas, preparatory to retirement.—*Par. 20, S. O. 92, A. G. O.*, April 21, 1887.

AINSWORTH, FRED. C., *Captain and Assistant Surgeon.*—By Par. 8, S. O. 92, A. G. O., April 21, 1887, detailed as member of board to meet in Washington, D. C., April 28, to prepare rules and regulations for the government of the Hospital Corps of the Army.

MOSELEY, EDWARD B., *Captain and Assistant Surgeon.*—Ordered for duty at Whipple Barracks, Arizona.—*S. O. 89, A. G. O.*, April 18, 1887.

CABELL, JULIAN M., *First Lieutenant and Assistant Surgeon* (recently appointed).—To proceed to Fort Omaha, Nebraska, and report in person to the commanding officer of that post for temporary duty.—*Par. 19, S. O. 92, A. G. O.*, April 21, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MAY 7, 1887. No. 19.

ORIGINAL ARTICLES.

A REPORT OF FIVE CASES OF PLEUROTOMY BY RESECTION OF THE RIBS FOR EMPYEMA.

BY W. M. STRICKLER, M.D.,
OF COLORADO SPRINGS.

To avoid repetition, I will in the beginning briefly state my method of operating. The sixth rib in the axillary region is my principal guide. Across this, nearly at right angles, I make an incision down to the ribs, about three inches long, commencing just in front of the posterior axillary fold, so that its centre shall correspond with that of the sixth rib. Across the centre of this incision I make a cross cut about an inch in length. The object of this last is not so much to facilitate the operation as the after-treatment. The sixth rib being bared, with a Hey's saw I cut it well nigh through at two points, completing the severance with bone forceps. By cutting the intercostal arteries with the saw they do not bleed. In fact, ligatures are seldom required at all in the operation. The pleura is now opened and the pus allowed to commence running out. With the forefinger in the cavity I feel to make sure of my distance from the diaphragm. I now remove a section of the seventh and then of the fifth ribs. I usually remove an inch and a half of the sixth, and about an inch of the seventh and fifth. The object of the longer section of the sixth is to facilitate the washings and use of the drainage tube after the resected ends of the others come together, which sometimes occurs immediately.

The cavity is thoroughly examined with the fingers or the whole hand inserted to the thumb, if need be. All large masses of fibrinous material and false membranes are removed with the fingers. Search is made for adhesions, and if any are found that would probably hinder reëxpansion of the lung, they are separated. A large quantity of hot water is injected from a Thudicum bottle or fountain syringe.

The patient is now turned on the affected side, to allow any water that remains to run out. A couple of stitches are inserted, the centre of the wound being left quite patulous. Gauze is placed over the wound, and over this a mass of oakum, which is held in place by a broad binder encircling the chest.

The main point in the after-treatment is to keep the cavity clean. To this end it is flushed out once a day with hot water injected as mentioned. At first two or three quarts are required to give a clear return current. These washings are kept up for a month, or longer, if need be.

About the end of the first week a tube is required to keep the wound patulous. I use a rubber tube at first, about the size of the little finger, diminishing as the case progresses. It is inserted just through the chest wall. As a case progresses, I guard against interfering with commencing adhesions by inserting only a small flexible tube in washing out the cavity, also by allowing only moderate force to the ingoing current. But little, if any, medicine is used. If the effusion be large, and especially if it be on the left side, congestion of the liver, from pressure of the ascending vena cava, is apt to remain for a time, requiring a cholagogue to set the patient on the road toward rapid improvement.

In the cases I shall now report it is hoped there will be found peculiar to each sufficient of interest to merit a perusal of all.

CASE I.—My first operation was done July 17, 1886, on a man of twenty-four years, of bilious temperament, and of good natural constitution. He afforded the following brief history. The month of April was spent in bed from typhoid fever, from which he convalesced slowly. On July 1st a troublesome cough led to an examination of the chest, which showed the left pleural cavity to be distended with pus. There was markedly present a symptom which I have found in all my cases of purulent pleuritis—a thickening of the subcutaneous cellular tissue over the site of the effusion. It was not detected by direct pressure, but by pinching up a fold of skin of the affected side it was found to be two or three times as thick as a corresponding fold of the opposite side.

July 8. His condition from loss of appetite and sleep, and from a distressing cough, was most pitiable. With the aspirator one pint of pus was drawn off, and five days later one and a half pints, with but little benefit.

17th. With the assistance of Drs. Jacob Reid, J. T. Eskridge, Hazlehurst, and E. C. Kimball, the operation was done as described. No disturbance was caused by the admission of air into the chest cavity; on the contrary, the pulse—which at the beginning of the operation was 130—fell during it to 100, the breathing improving in corresponding ratio.

On opening the pleura about two quarts of pus escaped. The lung was seen and felt to be greatly compressed against the mediastinum. No adhesions were found. The subsequent progress of the case was so smooth as to afford but little worthy of note. There was no bad odor in the discharge at any time, or elevation of temperature after the first few days. The pulse fell to 80, became full and strong, the appetite good, and the patient took on flesh rapidly. He did not keep his bed after the first week, although subsequent experience has convinced me that an early leaving of the bed should not be encouraged.

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At the end of the fourth week, all discharge having ceased, the tube was removed and the wound allowed to close. The falling in of the chest wall was quite apparent, but as there was no abrupt sinking in at any one point, there was no deformity worth mentioning. There was some dulness on percussion from the thickened pleura, but the respiratory murmur was good everywhere. The man became quite fleshy and robust, and to all appearances perfectly well.

CASE II.—This case is even more interesting than the first, owing to the existence of phthisis.

Dec. 30. I was invited by Dr. Jacob Reid, of this city, to see a young man of twenty-two years, whose left pleural cavity was greatly distended, evidently with pus. Four years previously marked dulness with broncho-vesicular respiration was found at the left apex. The patient had suffered more or less with cough for years. Although delicate, he was not entirely unfitted for light occupation, and was seldom seen by his physician. His family history is bad—his father and mother being both very frail. The patient himself is tall, lean, and of a nervo-sanguine temperament—altogether a bad subject for an operation.

His illness dated back eight weeks, and was diagnosticated as sero-fibrinous pleuritis in the beginning. After a few weeks the fluid was thought to have diminished, but changed to a purulent character with subsequent increase a week or ten days prior to this visit. His temperature was 105°, with breathing and pulse to correspond. He was very much emaciated, and almost as pale as a corpse. He was greatly harassed by a distressing cough, the intervals of rest being of but a few minutes, many times only seconds. The expectoration—which was abundant—was quite pinkish from admixture of blood. With the aspirator one and a half pints of slightly pinkish pus were drawn off. The improvement in his condition was marked, but of only short duration.

January 1, 1887, with the assistance of my associates in Case I., and that of Drs. Tucker, Solly, and Pennington, the operation of pleurotomy by resection of ribs was performed. The quantity of pus was estimated by gentlemen present at a gallon, and yet, notwithstanding the opening admitted the hand, only about one-third of it flowed out with the patient on his back. The lung was compressed against the mediastinum until it seemed not thicker than a man's hand. There were some long bands of adhesion, but as they were situated laterally I did not think they would hinder expansion, and did not interfere. In this case there were not only large masses of débris, but the gutter at the junction of the diaphragm and ribs in the posterior part of the chest was filled with a semi-gelatinous mass which was removed with the fingers. Although I supposed I had removed all the larger masses, either by the fingers, or by means of the bucket of water which was injected into the cavity, yet at the next washing several brain-like pieces as large as a lima bean came away. The progress of the pleural trouble toward recovery, although slow, was uninterrupted. The tube was not removed until the end of the eighth week.

As the lung began fairly to reëxpand, the expectoration became large, amounting to more than half a pint of sero-purulent matter daily, while abundant moist râles filled the lung. Under less salubrious surroundings, but one issue would have been expected. In the aseptic air of this dry and elevated region the result was watched with interest, but without apprehension, as the appetite was good, the temperature normal—the patient meanwhile taking on flesh continuously.

It is now three months since the operation. Re-expansion of the lung is complete—the moist râles have disappeared, and the expectoration amounts to almost nothing. His weight is up to his average, and he is enjoying life immensely.

CASE III.—Feb. 12, I was invited by Dr. Fuller, of Manitou, to operate on a young man of twenty, who had been ill three weeks with pleural trouble. Within a few days past he had been tapped twice, a quart of pus being withdrawn on each occasion. With the assistance of Drs. Fuller, B. F. D. Adams, Kimball, and Hazlehurst the operation of resection of ribs was performed. On making a small opening into the pleura a stream of pus spurted to a distance of five feet, and persisted for some time. On enlarging the orifice a large quantity came away. The quantity in this case was enormous—more than it would seem possible for a pleural cavity to hold. The position and shape of the lung were interesting. It had been prevented from rising in the cavity by adhesions to the diaphragm and was compressed from above as well as laterally, so that the apex was on a level with the axilla—the fingers introduced in the wound passing readily above it. The lung, compressed against the mediastinum in every direction save from below, resembled in shape one-half of an ear of corn, split lengthwise, excepting that it was somewhat flanged at the base. The adhesions at the base were not interfered with, as it did not seem that they could hinder expansion.

The after-treatment was conducted by Dr. Fuller, who informs me that good expansion occurred, with reëstablishment of vesicular murmur everywhere, with perfect obliteration of the cavity by agglutination of the pleural surfaces—in short, that the patient did finely—far beyond all expectations.

CASE IV. *Empyema of eight years standing.*—March 11, 1887, with Dr. Adams I was called by Dr. S. E. Solly in consultation to see Mr. D., aged forty-four years, weighing 190 pounds, of strong build and powerful constitution, with the following history:

Eight years ago he had pleuritis of the left side. Was aspirated forty times at intervals of from four to eight days—pus being drawn. This was in the first year of illness. Subsequent to the last aspiration, on various occasions a large amount of pus had been discharged through the mouth, indicating the existence of a pleuro-bronchial fistula. He came to Colorado six years ago, and remained here three and half years, with great improvement. He then returned to Boston and remained there two and a half years. His health again failed. He expectorated largely, had copious night-sweats, and became greatly emaciated. He returned to Colorado in

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November last. His expectoration soon ceased and general improvement occurred, and continued to within a week of this time. Since then he has been having a rise of temperature of from two to five degrees, with loss of appetite, oppression about the chest, and general malaise. Inspection of the chest disclosed a cicatrix between the third and fourth ribs, extending from the sternum a distance of six inches to the left. About the centre of this there was a small sinus, which extended down between the ribs, and which discharged a few drops of serous fluid almost daily with occasional small quantities of pus. By the physical signs a small collection of fluid in the subaxillary region was diagnosticated, which, from the history of the case and present symptoms, was believed to be pus. The following condition was also thought to exist: a condensation of the subpleural and interlobular cellular tissue, of long duration, with incomplete reëxpansion of the lung, and a consequent pocket with walls that slowly secreted pus which did not thoroughly drain off through the sinus in front.

To secure obliteration of this space the operation of resection of the ribs was advised and the following day was set for the operation. In the meantime quite a discharge of pus took place from the sinus, with relief from discomfort. But as the sinus was badly located for complete drainage, and as accumulations had occurred from time to time for years, and as there was constant danger of a reopening of the bronchial fistula and the patient was hostile to any further half-way measures and anxious for a radical cure, we decided to perform the operation.

On reaching the ribs a grooved director was pushed into the cavity between the sixth and seventh ribs which passed two and a half inches before encountering the lung. Upon its withdrawal no pus escaped although some was contained in the groove. An inch and a quarter of the sixth and seventh ribs was removed. On passing the finger into the cavity a depression four inches in diameter was found in the upper part of the lower lobe, in the margins of which were straggling bands of adhesions. In its centre a cicatrix marked the site of the bronchial fistula. The lung was greatly puckered about this point, and the visceral pleura thick and unyielding for a couple of inches in every direction. Beyond the margins of this cup shaped depression the pleural surfaces were closely united in every direction excepting in front. The lower anterior margin of the upper lobe had evidently united to the chest while pushed upward from a former effusion, for when the adhesions were separated, it immediately expanded, dropped downward and backward, and jutted out into the wound. To relieve the lower lobe of constriction from adhesions they were separated for four or five inches in every direction from the site of the cicatrix. Beyond this they were so firm as to resist reasonable force. No expansion of the lung occurred in the vicinity of the cicatrix. To the eye this scar tissue was bluish and looked altogether different from the surrounding lung tissue.

At the time my opinion was that sufficient collapse of the ribs would occur, to approximate the chest wall to the bottom of the depression, but should such not be the case, from previous experience I felt satisfied that by keeping the wound open, any space left would fill up by granulation. In this case I had fears of resulting acute pleuritis, but it did not occur to any extent worth mentioning. In fact the patient scarcely lost a meal. In a few days the discharge became quite free, of an odorless purulent character.

It is now nearly three weeks since the operation and the case is progressing with every prospect of a perfect result.

CASE V.—March 24, 1887, Dr. Adams and I were called by Dr. Kimball to see with him a man of twenty-three years, who had recently been brought in from the mountains suffering from pleuritis of less than four weeks' duration. His temperature was from two to four degrees above the normal. The right side was bulged out, immobile, with obliteration of intercostal depressions. Heart apex in left nipple line. Skodaic resonance at right apex in front, resonance good between sternum and right nipple line to diaphragm, indicating adhesions of the lung in front. Flatness on lateral region and back from diaphragm to axilla and spine of scapula. Fremitus weakened but not suppressed. Vesicular murmur weakened and distant, yet heard all over the region of flatness so distinctly as to be quite perplexing. Subcutaneous cellular tissue of affected side thickened.

With the aspirator only a few drops of pus could be drawn despite repeated efforts, after several introductions of a probe to clean the canula, and yet when the aspirator was detached about half a pint was discharged through the open canula. Two days later pleurotomy by resection of ribs was performed. The most notable feature was the presence of a large amount of solid matter in the pleural cavity. After all pus had been emptied, the posterior and lateral parts of the cavity were found filled by a mass of fibrinous material. It was so solid that it had to be broken up and removed piecemeal. There was a pint measure full of it. It extended from the diaphragm to the spine of the scapula and from the spinal column to the axillary line. There was no difficulty in effecting its complete removal, although it was somewhat adherent to the opposing pleural surfaces. The cavity was left thoroughly clean. The lung was adherent in front and at the base and was greatly compressed from behind and laterally. It is, at the date of writing, five days since the operation and everything points toward an uninterrupted recovery.

ABDOMINAL SECTION FOR PELVIC ADHESIONS.

BY JOHN B. SHOBER, M.D.,
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ANNE D., æt. thirty-four, came under observation during the first week of last December. The following notes were taken at the time: As a child she was never particularly strong, though she enjoyed fairly good health. Occasionally she had attacks of diarrhœa, and when fourteen years old she had

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pleurisy. She married at the early age of sixteen, and seven months later had a miscarriage which was followed by nine others during the ensuing seven years. She then had a child at full term, who is now living and enjoys good health. She has had one miscarriage since, this was about seven or eight years ago, after which she was treated for chronic inflammation of the womb. It was at this time that she first experienced pain on the left side, extending from the back to the groin and down the thigh. Exertion of any kind would cause her abdomen to swell upon this side. She frequently had cramps with alternating diarrhœa and constipation. She has worked hard during the past three years, and all her unpleasant symptoms have become exaggerated. She now complains of intense pain upon any exertion, especially severe in the region of the left ovary, cramps, flatulence, sometimes severe headaches, obstinate diarrhœa, great weakness, and general wretchedness. Rigors sometimes followed by fever and sweating have been among her many other symptoms during the past month.

She is a small, much emaciated woman, very anæmic, and of a highly nervous temperament; weight about ninety-eight pounds; lungs, heart, and urine normal; liver apparently normal; abdomen tympanitic, decided pain on pressure in left iliac region. Vaginal examination shows well-marked retroversion of the uterus, the left ovary bound down and adherent in the floor of the pelvis, the Fallopian tube thickened and of a doughy consistency. There is a decided pain throughout this mass. The right ovary is not so large or tender as the left and is more movable.

There is a profuse leucorrhœal discharge, a slight bilateral tear of the os uteri, and a lacerated perineum. She has been rapidly losing strength and weight, and has been a great sufferer for the past three months.

For two weeks preceding the operation she was placed upon the most active tonic and supporting treatment, notwithstanding which she seemed to lose rather than gain; her worst symptoms being left ovarian pain, cramps, flatulence, diarrhœa, daily rigors, followed by slight fever and sweating; steady and progressive loss of weight and strength. Her condition was most critical.

On the 21st of December, at the patient's home, with the assistance of Dr. Joseph Price, I removed the left ovary and Fallopian tube. The patient being etherized, a two inch incision was made in the median line. The ovary was found firmly adherent to the floor of the pelvis and to folds of intestine. The uterus was slightly retroverted owing to traction by the adhesions, but otherwise normal. The right ovary was quite free. Enucleation was accomplished with difficulty. A silk ligature was applied close to the cornu of the uterus; the ovary and tube were then removed and the pedicle washed with 1: 1000 $HgCl_2$ and returned. There was no hemorrhage from either broken adhesions or pedicle. The abdominal wound was closed tightly with catgut sutures, no provision being made for drainage. The dressing was protective, iodoform and bichloride gauze, a large mass of bichloride cotton, and a flannel binder.

During the first forty-eight hours she was allowed nothing but champagne, of which she took four ounces every second hour. She then began taking milk, beef-tea, soups, etc., and in a few days her diet was increased to semi-solids. Her highest rise of temperature was on the evening of the second day, when it reached 100¾° F., from which point it steadily fell to normal on the fifth day and remained there. Metrostaxis came on thirty-six hours after the operation and lasted three days, accompanied with some pain and tympany. On the third day she had two large, offensive bowel movements, and from that time, throughout her convalescence, she had two or three large and usually offensive movements every day. On the eighteenth day the dressing was removed for the first time and complete union was found to have occurred. In a few days she was allowed to sit up and was soon able to be out of bed. During her convalescence she occasionally had twinges of pain in the left side, but not of the same character as those she had previously suffered. This soon passed off, so that now she experiences no pain whatever. She no longer has rigors or fever. Her strength is daily increasing and she has gained eleven pounds since the operation. Her bowels, which were troublesome for some time after the operation, are now regular. She has returned to her work as seamstress, and says that she has not felt so well and strong for years.

Upon examination the walls of the tube were found to be decidedly thickened, and though evidently the seat of inflammatory changes, it contained no pus and only a small amount of epithelium. Its calibre, however, was decidedly enlarged. The ovary contained four cysts with thin walls, each holding an amber-colored fluid, the largest being about one half of an inch in diameter, and the smallest about the size of a pea.

I had expected to find in this case what has been termed pyosalpinx, or at least a desquamative salpingitis. I found neither of these conditions. It is true the ovary was the seat of cystic changes and appeared cirrhotic, but it has been claimed that this condition of the ovary is not necessarily pathological,[1] and I cannot persuade myself that the great suffering this patient experienced previous to the operation was due entirely to pathological changes in the ovary or tube. It seems more likely that the cause of all her trouble was a recurring pelvic cellulitis or peritonitis resulting in adhesions on the left side, which, by dragging on the appendages and binding down the ovary, caused pain by traction and, perhaps, interfered with function and gave rise to her other reflex ovarian symptoms.

It has been suggested that in these cases it would be sufficient simply to break up the adhesions, thus freeing the bound-down appendages, and a question might be raised as to the propriety of removing the ovary and tube in this case.

The following considerations will, perhaps, justify the procedure:

1. The patient had for many years been the subject of recurring attacks of severe pain in the left

[1] H. C. Coe: American Journal of Obstetrics and Diseases of Women and Children, June, 1886, vol. xix.

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ovarian region, accompanied by the symptoms above described. These attacks had become gradually more and more frequent, so that during the two or three months immediately preceding the operation she was a constant sufferer, was rapidly losing strength and had become alarmingly emaciated.

2. Upon sight, the ovary and tube appeared to be diseased, and it has not yet been decided that they are not. Sections have not been made.

3. By dropping the appendages after breaking up the adhesions, the patient is subjected not only to the risk of peritonitis caused by rupture of cysts after necessarily rough handling, but also to the certainty of new adhesions forming, which might give more trouble than before, and might even lead to another operation.

ELECTRICAL AIDS IN THE TREATMENT OF INSOMNIA.

BY G. BETTON MASSEY, M.D.,

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WANT of sound, refreshing sleep is a symptom of many chronic diseases that taxes most severely the mental health of the patient, and, reacting upon the body, effectually opposes our best directed efforts toward a relief of the primary conditions. In relentless persistence it envelops its victims within the grasp of a hopeless hunger that causes them to look back upon moments of sleep with a longing far more intense than those of the desert traveller for the "shadow of a great rock in a weary land." The imperious nature of these longings needs to be felt to be understood, and the absence of familiar reference to them in the highly poetic language of the Orientals is strong presumptive evidence of the freedom of the ancients from this characteristic consequence of modern overwork and worry.

But whatever may have been the experience of the past on this point, there is no doubt of the present prevalence of this bad habit of the nervous system, and of the great value of any means to break it up that will not in its turn give rise to a habit equally pernicious. Such a means we undoubtedly possess in electricity, either alone or combined with massage, and its value in the treatment of the obstinately insomnious is too little appreciated by the majority of those called to combat the effects of narcotic habits or the insomnia of incipient nervous and mental diseases. While total failures occasionally occur, the results of its use are at times exceedingly noteworthy; and it, of course, has the advantage of being incapable of giving rise to a habit of its own, to the future detriment of the patient. The somnolent power of certain applications is so great that I have frequently had patients who were not troubled with insomnia go to sleep under them while sitting upright in a chair engaged in conversation. The principal disadvantage connected with this plan of treatment is the necessity for each dose being given by the physician himself or by a trained assistant; and too much stress cannot be laid upon the statement that neither the patient nor the ordinary attendants are capable of administering electrical currents for this purpose with any chance of success. I have been particularly impressed with the delicacy of technique required in some cases; a slight deviation from the proved method, an accidental shock, or the use of a too strong current destroying the good effect for the subsequent night at least.

The particular methods to be adopted and the question of conjoining other means of treatment must be decided in accordance with the nature of the case and the nervous balance of the individual, the rejection, or selection and combination, of drugs, electricity, massage, and other aids demanding the most intelligent judgment on the part of the physician.

Four different methods have been of service in the cases under my observation. Two of these methods are by no means hypnotic, but seem to make sleep at a subsequent hour more possible, and are best applied at any time that is convenient during the day up to within an hour or so of bedtime. One of them consists in a general stimulation of all the accessible muscles of the body, except those of the face and neck, by local applications of the faradic current after the manner prescribed so largely by Dr. S. Weir Mitchell in cases of rest cure. Beginning with one of the limbs, each muscle or group of small muscles related in action is stimulated in turn to contract some six or eight times until the whole body, except the face and neck, has been traversed. Medium or large electrodes will be found most convenient in stimulating the several groups, and I have also found the slowly isolated currents (about 80 per minute) most efficient in producing the greatest amount of motion with a minimum of pain.

During the application the temperature rises as a result of the work forced upon the muscles; the central organs are relieved of any surplus of blood; the whole of the peripheral motor system is exercised without calling upon the jaded nerve centres; and the latter are probably affected by salutary influences due to the direct centripetal conveyance of sensory stimulations. This procedure is especially valuable when the general nutrition is below par, or when the patient suffers from cold extremities and other inequalities of the circulation.

Another method that may be applied during the day is general franklinization. The patient is insulated and connected with one pole of a Toepler-Holtz machine; the other pole, in the shape of a ball electrode, is carried over the whole person above the clothing in such a manner that short sparks are drawn from all parts of the surface except the face and hands. All-wool clothing will be found to be the best medium for the trans-penetration of the sparks between the electrode and skin, as linen, and to some extent cotton fabrics also, intercept the current by virtue of being passable conductors themselves. The result is a strong stimulation of the sensory apparatus through excitations that fall entirely upon the peripheral terminations of the nerves. The element of motor stimulation being wanting,

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this procedure is less conspicuously tonic and recuperative than the method of general faradization just mentioned, but it produces a decided feeling of exhilaration that is often followed by a reposeful reaction in which sleep occurs. From a physical point of view, this method of franklinization is closely analogous to Beard and Rockwell's mode of administering general faradization, and in practice I have found it to possess an equal therapeutic value without the disadvantage of requiring the clothing to be removed. In a case of chloral habit recently seen not only was the night's sleep notably improved, but a nap in the daytime occasionally followed the applications.

For the immediate production of sleep, however, these stimulating methods of treatment are frequently inferior to more sedative applications administered after the patient has been prepared for the night and surrounded with appropriate quiet and repose. Of these latter the most serviceable is the continuous galvanic current applied with anode to occiput and cathode to the back; although a gentle, rapid-succession faradic current similarly applied will act better in some cases. With both currents the electrodes must be large and well wetted, and should be placed in position while the current is at its lowest, the strength being then increased to the desired point. With the galvanic current a rheostat is absolutely necessary for the gradual increase of the current to about three to five milliampères and its equally gradual diminution at the end of the application. A milliampèremeter will also be found of great service in accurately indicating the current strength at a given moment; in its absence the sensations of the patient may be taken as a guide, the limit being a pleasurable warmth or slight burning sensation. Ten to fifteen minutes duration will suffice, at the end of which the current is to be imperceptibly lessened to nil and the appliances removed as quietly as possible. All shocks from sudden interruptions or variations of the current should be carefully avoided.

Instead of applying the anode of the galvanic current to the occiput, it may be applied to the subaural region as in the so-called galvanization of the sympathetic. The hypnotic effects are here at times greater, but the manipulation required is more delicate, and there is a strong chance of increasing the patient's wakefulness by blunders. As a rule two milliampères are sufficient in subaural galvanizations for this purpose.

Simple anodic faradization of the occiput is frequently attended with most gratifying results. In making this application the cathode should be placed in the position least likely to give rise to sensation (on the heel is preferable, but *not* on the thin skin of the instep), both poles being well moistened. The current is increased at once from the initial weakness to a strength that is distinctly felt at the anode and is not increased further, notwithstanding the rapid fading of the sensation as the nerve ends become tolerant of the stimulus, for a gradually increasing faradic current is anything but sedative. The full effect of this application requires that the note emitted by the hammer of the interrupter shall be clear and free from quavers due to irregular vibrations.

1706 WALNUT STREET.

REPORT OF AN OBSTETRICAL CASE, WITH SERIOUS COMPLICATIONS, CAUSED BY INDIGESTION.[1]

BY WILLIAM R. WHITE, M.D.,
OF PROVIDENCE, R. I.

THE nature and probable cause of complication in the following case will, it is hoped, justify the writer in reporting it.

Early in the morning of November 26, 1886, Mrs. J. sent for me to attend her in her first confinement. On arriving at the house, more than a mile distant from my own, I found her to be an American, short in stature, well formed, and eighteen years of age. She had not expected her confinement so soon by a month, but had no reliable data for determining just how many months gestation had been progressing. Her general appearance indicated perfect health, and her own statement that she "had never been sick" was undoubtedly true. Her condition during gestation had been excellent in every particular. She had attended to her usual household duties without inconvenience, had been out of doors more or less daily, had had a good appetite, had not been constipated, and had noticed no constitutional or local disturbance, except such as was incident to her increased size. Her feet and ankles had been slightly œdematous for a few weeks past.

Between two and three o'clock on the afternoon previous, she had been a guest at a bountifully laden Thanksgiving-day dinner-table, and, feeling perfectly well, had done ample justice to the feast of things so good to the taste, but oftentimes so bad for the digestion. She ate freely of the turkey and the numerous etceteras, including dressing and rich gravy. For dessert she had an abundance of suet pudding with sweet sauce. She suffered nothing from her repast, however, and retired that evening all right, so far as she knew. But she could not sleep, and about two o'clock the next morning, much to her surprise, began to have labor pains which continued. About the time they began, she had two or three loose, painless stools, of which no more exact description could be obtained.

Upon my first examination, at about 7 A.M., I found every sign and symptom of the case to be favorable. The woman was dressed, and about the house, being disinclined to lie down. She was cheerful, betraying little or no nervousness or dread. Her tongue was somewhat coated. The pulse was 72, and of excellent character. No œdema of the extremities existed. She had taken no nourishment since her Thanksgiving dinner, and desired none. Examination showed the vagina to be moist, the rectum empty, the os uteri partially dilated, with its margins thin and yielding, the membranes intact, and a vertex, easily reached,

[1] Read before the Rhode Island Medical Society, March 17, 1887.

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presenting in the right occipito-anterior position. The fœtal heart was readily heard, its rate being about 150 per minute. The pains were then quite brief, and not very severe. They were frequent; but during the intervals the patient was as comfortable as need be, not complaining at all of nausea, intestinal pain, headache, or anything else. The urine was passed often. I advised her to take a little light nourishment, which was declined. Not caring to return home, I spent most of the forenoon within sight of my patient, and can assert that in every particular, so far as was manifest, the progress of the case for the next few hours was normal. Late in the forenoon the pains grew sharper, but the patient bore them well and insisted on keeping about, although advised to save her strength by lying down a part of the time at least. The pulse, noted frequently, ranged between 72 and 80, its good quality being constantly maintained. In short, up to twelve o'clock noon I anticipated only a normal condition of things for mother and child to the end of the labor. I will state just here that no opiate or medicine of any kind had thus far been given.

But now a decided change in the aspect of the case occurred. The pains became longer and more severe as the first stage of labor merged into the second stage, and the woman became very uneasy. She was now as anxious to get to bed as she had been persistent in keeping about the room. She was hurriedly assisted to undress and lie down. On examination I now found the os fully dilated, the head low down in the pelvic canal, with the membranes intact and greatly distended. On counting the pulse, I found, greatly to my surprise, that it was exactly 48 per minute. It was weak and soft, but regular, perfectly distinct, and easy to count. Auscultation revealed no abnormal heart-sounds. The slowness of the pulse, however, was almost startling in view of the existing circumstances and the suddenness with which the very marked change had taken place. If its rate had been 98, or 108, or 118, I should not have been surprised; but a pulse of 48 in a healthy, young primipara, just entering on the second stage of labor after a perfectly normal first stage, was a phenomenon never before encountered by the writer.

I am sure that the drop in the pulse-rate occurred within a period of ten or fifteen minutes, and during the excitement and hurry of being put to bed, as it had been counted not long before and found to be between 70 and 80. This great change in the pulse, however, was not accompanied by any immediate unfavorable change in the general condition of the patient. She was not pale, had no dyspnœa, showed no signs of syncope, or even weakness, and complained of nothing but the labor pains, which were strong and very frequent. On listening now for the fœtal heart I could not hear it at all; partially for the reason, I think, that the woman was so uneasy on account of the pains, though possibly its sounds may then have been so weak as to be inaudible, even under favorable conditions for listening. It will be remembered that earlier in the forenoon they had been heard and counted with ease.

The maternal pulse-rate of 48 continued, and I realized the need of completing delivery at once, for the safety of both mother and child. Natural forces very kindly accomplished the desired result and so promptly that even if the forceps had been applied with all skill and expedition, little time could possibly have been saved, as it was only twenty minutes after the woman lay down that the membranes were ruptured, the head appeared distending the vulva and was immediately born, the shoulders and trunk following without delay. The whole expulsion was accomplished, practically, by one prolonged uterine contraction, something in itself not often observed in cases of primiparæ at term. The mother's condition did not perceptibly change during the prolonged and severe expulsive effort, and I was able to devote my attention wholly to the infant for the next few minutes.

It was a male child, between five and six pounds in weight, fully developed and, apparently, dead, as it did not move, or cry, or breathe, or even gasp. Its entire skin was blanched to the degree of complete exsanguination.

But the heart was beating feebly, and leaving the funis untouched, I tried various methods of resuscitation—with no success for several minutes. It was only by repeatedly forcing my own breath into its mouth and trachea that I finally obtained the first attempt at inspiration. The child came round all right and soon the cutaneous circulation was re-established, making the skin as red as it had just been pallid. The cord was then tied and the placenta delivered immediately. The uterus contracted well and remained firm. The mother's pulse was still exactly 48, but she showed no signs of failing strength. Very soon, however, she began to complain of intense frontal headache, which had come on suddenly.

I ordered the application of cold water compresses to the head, gave her five grains of Dover's powder, to be repeated once if the pain continued. The room was darkened, and my directions were to keep everything about the patient as quiet as possible. I remained in the house an hour, when the pulse had risen to 54 and had improved in degree of strength and fulness. The headache was still severe. Hoping the patient would soon fall asleep, if left to herself, I went home.

Visited the case at 6 o'clock the same afternoon. Found the baby all right but the mother in an unsatisfactory condition. She had slept none, the headache had been incessant and very severe. She had been restless, tossing about and sitting up in bed. There had been considerable flowing, but not to an alarming extent. The uterus was well contracted. The urine had been voided. The pulse was 54, temperature, by the mouth, 102° F. The face was flushed, the eyes suffused. There was photophobia. Water had been taken freely to allay thirst. The patient's appearance was wholly unnatural, manifesting discomfort and restless excitement. She did not complain of nausea or abdominal pain. I readjusted the binder which had become displaced, and gave her twenty grains of bromide of sodium with directions for ten

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grains to be given from time to time if the headache, wakefulness, and restlessness continued.

About 9 o'clock the same evening, a messenger came to tell me that my patient had been acting strangely, that she had been vomiting, had not been able to see, had for a time been unconscious, had been convulsed, and had not seemed to be in her right mind since. Of course, I went to the case as soon as possible, with thoughts of uræmia and post-partum convulsions or coma vivid in my mind. Found the woman quiet, but feeling strange and bad in her head. She knew me, but was much confused as to what had occurred to her since my 6 o'clock visit. She spoke without difficulty and said she had had some sort of a fit, during which she had bitten her tongue. Her pupils were alike but dilated. There was no other paralysis. Her pulse was 54, temperature 102° F. She had vomited profusely, but the matter ejected had been thrown away. She had passed water just before I arrived, but there was so much uterine blood mingled with it that it was useless to test it for albumen. I did not pass a catheter.

Anticipating a return of the brain symptoms, I decided not to leave the case that night, and went into an adjoining room to prepare a ten grain dose of calomel which I proposed to give her immediately and to follow it later by a full dose of castor-oil. Just then I heard the woman attempting to vomit. I went to her and supported her head while her stomach unloaded itself of a basinful of nasty, offensive, sour-smelling matters, evidently the products of indigestion, diluted by the water she had drank.

The effect of thus relieving the overburdened stomach was immediate and most favorable, as the woman said directly that she felt very much better, which was perfectly evident. The headache was less severe and the mind was now clear. The pulse remained 54.

The patient became quiet and bade fair to go to sleep soon. I directed that she should not be disturbed for any medicine that night, but be allowed to sleep as much as possible. I left her, feeling pretty confident that the worst trouble in her case was over. Saw her the next forenoon. She had rested well and was now quite comfortable, though the head still ached. She had not vomited again and there had been no return of the alarming symptoms of the previous evening. Her pulse was 54, temperature and pupils normal, tongue covered with a thick, white coating. The urine passed during the night contained too much blood to admit of a reliable test for albumen. I directed that she be given an ounce of castor-oil.

Upon my next visit, the following forenoon, my patient's unpleasant symptoms had all disappeared. The oil had caused free catharsis, the headache was all gone, she had slept well, the tongue was clearing up, appetite returning, breasts distended, temperature normal and pulse 65. I saw her a few times subsequently; she did not have a single unfavorable symptom, and at the end of two weeks I left mother and child doing as well as possible.

I have given the clinical history of this case thus explicitly in order that others may form their own opinions as to the cause of the unlooked-for alarming symptoms which complicated it, and which certainly form no part of the history of a natural confinement. Whatever may have been the cause of the abnormally slow pulse, headache, elevated temperature, and subsequent brain symptoms, on the part of the mother, it certainly came near resulting in the death of the infant from failure of the circulation, and, for a few hours at least, the woman's condition was not encouraging. I cannot assert that there was no albumen in her urine; indeed, very likely there was a trace or even more of it present at the time, but I do not think albuminuria or uræmia had anything whatever to do in causing the trouble. There certainly was no sign of septic influence, and hysteria may also be eliminated.

My own impression is that it was the excessive overloading of the stomach, on a day and hour most unfortunate for the patient, that must be regarded as the real and primary cause of the severe complications. Progress has been made recently in the study of the fermentative and putrefactive changes which the contents of an overloaded stomach may undergo, resulting in the development of certain toxic elements whose effects on the nerve centres and the circulation may be serious in the extreme. Possibly in this direction we may look for an explanation of some of the conditions present in the case just described.

Undoubtedly, also, the disturbance that would, under other circumstances, naturally have resulted from the excesses referred to, was greatly aggravated by the inevitable reflex irritation incident to the first and second stages of labor, and hence this reflex irritation may be regarded as the exciting cause of some of the symptoms.

SULPHURETTED HYDROGEN INHALATIONS AS A METHOD OF TREATMENT FOR PULMONARY TUBERCULOSIS.

BY ARTHUR C. HUGENSCHMIDT, M.D.,
OF PARIS, FRANCE.

THE subject of the treatment of pulmonary tuberculosis by means of sulphuretted hydrogen has attracted so much attention for past weeks, that it may not be without interest to describe the employment of this gas by another method which, during the many years it has been used, has given very satisfactory results. This method has added to its interest this factor, that while the treatment of phthisis by enemata shows, strange to say, no diminution in the number of tubercle bacilli contained in the sputa, and even, in some cases, an increase in quantity is said to have been observed, in this method, after a few days' treatment, the microörganisms are found to have greatly decreased in number, and, in some cases, totally disappeared.

The observations we shall describe have been made by Dr. B. Niepce, physician in chief at the mineral springs of Allevard, France, who, for a period of thirty-two years, has been enabled to observe the beneficial influence of the inhalation of the gases contained in the sulphurous water in the treatment of affections of the respiratory passages, having

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obtained, in many cases, cures of phthisis of the first stage, and even second stage, with a notable amelioration of the distressing symptoms of the last stage.

The inhalations as administered at Allevard are given as follows: The patients are placed in a spacious room, which is about twenty-one feet long, eighteen feet wide, and eighteen feet high, with very large windows, to allow a rapid ventilation after the inhalations are over. In the centre of the room there is a jet of the mineral water, which, striking a concave plate placed six feet above the lower reservoir, causes the jet to separate and divide itself into many drops, which liberates the gases contained in the water. The gases and their quantity contained in a litre of the mineral water are:

Sulphuretted hydrogen gas .	24.75 c. cm.
Carbonic acid	97 00 c. cm.
Nitrogen	4.00 c. cm.

The cures of phthisis which had been obtained by Dr. Niepce during his long practice he could only attribute to the beneficial influence of the mineral water producing a salutary modification of the organism, but further explanations could not be given.

In 1883, however, he began his observations as to the influence of the inhalations upon the presence of the tubercle bacilli; and, to his surprise, found that, after a few days' treatment, in patients of the first and second stages of the disease, there was a great diminution in number, even sometimes complete disappearance.

He then undertook a long series of experiments, of which the following are the principal.

1st. Having ascertained the presence of bacilli in a sputum, he inoculated two rabbits and guinea-pigs with it. One month later they were all tuberculous.

2d. He left, for twenty minutes, in the atmosphere of the inhalation-room, a portion of the same sputum, which he then directly inoculated in rabbits and guinea-pigs; three months later, at the autopsy, no signs of tuberculosis could be discovered; these observations, repeated several times, gave negative results.

In a third experiment he took four mice, which were inoculated with portions of sputum containing bacilli; two of them were placed in the inhaling-rooms, the others left outside. Six weeks later, at the autopsy, the ones exposed to the inhalations of the gases were found free from tubercle; the other two, on the contrary, being absolutely filled with tubercular nodules.

Such satisfactory results led Dr. Niepce to experiment with inhalations of sulphuretted hydrogen alone, with equally good results.

1st. Two rabbits and two guinea-pigs were inoculated. On the twentieth day the two guinea-pigs were sick, and on the forty-fifth day the autopsy revealed extensive tuberculosis. The two rabbits, however, which had been inoculated with the same material, but which had been submitted for three weeks, three times a day for half an hour, to the inhalations of sulphuretted hydrogen alone, were absolutely normal at the autopsy.

2d. Sputum which had been exposed for ten minutes to an atmosphere containing three per cent. of sulphuretted hydrogen, was inoculated in rabbits, the organs of which were found normal three months later. This same sputum, which had not been exposed to the vapors, produced the disease in every animal inoculated with it.

3d. A patient in the second stage of the disease was submitted four times a day, for a period of fifteen minutes, to inhalations of an atmosphere containing three per cent. of sulphuretted hydrogen. On the twelfth day the number of bacilli had greatly diminished, and on the twenty-seventh day, when the cutaneous surface and sweat had an odor of sulphur, and the sputum contained sulphide of sodium, this sputum was inoculated in guinea-pigs, with negative results, no tuberculosis being produced; showing evidently that the bacillus or septic poison had lost its virulence.

To approximate the method of administration of this gas as nearly as possible to the one established by him at Allevard, he employed a reservoir made of zinc (that metal not being acted upon by the gas), the capacity of which was fifty litres; he dissolved twenty-seven cubic centimetres of sulphuretted hydrogen in each litre of water. The vessel being then filled with this water containing the gas in solution, was placed at a height of about ten feet, and an opening half an inch in diameter at the bottom of this reservoir allowed the water to come out as a small stream into a zinc vessel placed beneath it, the gas being so set free. The patients are directed to inhale four times a day, fifteen minutes at a time, and continue such treatment for several weeks, when the inhalations are suspended for some time, and then again resumed.

Dr. Niepce had already expressed the results of his experiments in a paper presented before the Academie de Médecine, in January, 1884, in which he concluded that the "inhalations of pure sulphuretted hydrogen, employed as a therapeutical agent, modify, and sometimes cure, pulmonary tuberculosis." His experiments were confirmed by Professors Cavalier and Mairet, of the Faculty of Montpellier; also by a recent graduate, Dr. Pilatte, who undertook researches on the relative power of the different antiseptics known, as regards their action on the tubercle bacillus, and reached the conclusion that, "of all the antiseptics employed, sulphuretted hydrogen was the most reliable, preventing the development of the bacillus, at the same time destroying this microörganism."

Such satisfactory results have been obtained from the employment of sulphuretted hydrogen brought into direct contact with the lung tissue, as to warrant further and extensive experiments in that respect, which will certainly prove most interesting.

The combined use of these two methods, namely, enemata and inhalations, may prove to be of the greatest benefit, for one might replace the deficiency of the other, when acting at the same time. For instance, the gas, when given by enemata, seems to have lost, when exhaled by the lungs, that special power of destruction of the tubercle bacillus which it possesses when brought in direct contact

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with it; for we know the number of bacilli remains the same, or even increases under such treatment. It would be interesting to know if the sputum, after the patient has been subjected to the enemata treatment for several weeks, is capable, when inoculated in animals, of producing the disease. If so, sulphuretted hydrogen inhalations, by destroying the bacillus, and preventing its development by direct action upon it, will certainly be a most valuable adjunct to the new treatment.

THE ADMINISTRATION OF GASEOUS ENEMATA SIMPLIFIED.

BY H. M. BRACKEN, M.D.,
OF MINNEAPOLIS, MINN.

WISHING to try the treatment of pulmonary diseases by means of gaseous enemata the following appliance was used, on the suggestion of Dr. J. Clark Stewart.

An ordinary siphon bottle charged with carbonic acid gas and water in the usual way: a pound bottle containing a sulphide in solution, closely corked, and having a long inlet and a short outlet tube, both of glass; a rubber tube attached to the siphon connecting it with the bottle containing the sulphide solution, and the tubing with the metal tip of an ordinary fountain syringe conveying the sulphuretted hydrogen from this bottle, where it is generated, to the rectum. When ready for use the siphon is inverted (for in this position only the carbonic acid gas escapes) and the cock is opened slowly. It is very easy to regulate the supply of gas in this way. The advantages of this appliance are:

1. *Cheapness*, a thing always worthy of consideration in trying new methods. All the material required will not cost over one dollar, and any physician can put it in working order.

2. *Convenience for manipulation*, there being no delay in generating carbonic acid gas and preparing the ordinary gas bag. It also does away with the double valved syringe bulb and its continuous manipulation.

Siphons, charged, can be obtained from druggists or bottling companies at a nominal cost. Those charged with ordinary pressure will supply gas for two or more enemata.

One attendant can easily hold the inverted siphon, regulate the supply of gas, and observe the effect on the patient, while the patient is able to control the rectal tube.

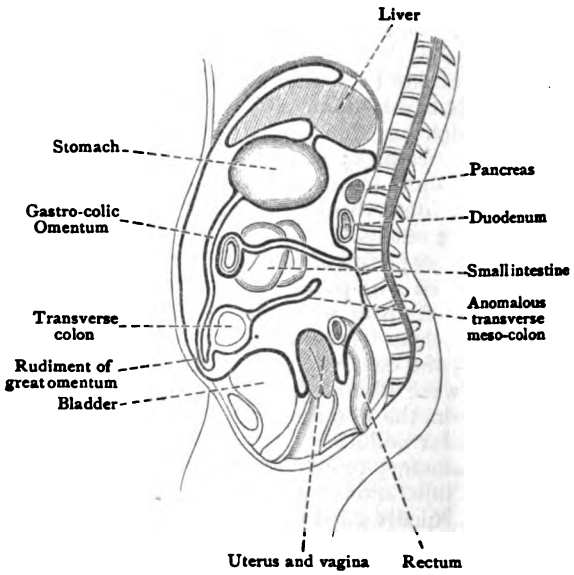
AN ANATOMICAL ANOMALY OF THE PERITONEUM.

REPORTED BY ALLEN J. SMITH, M.D.,
RESIDENT PHYSICIAN AT THE PHILADELPHIA HOSPITAL.

IN the abdominal cavity of a case recently upon the post-mortem table in the Insane Department of the Philadelphia Hospital a peculiar anatomical anomaly was discovered. On opening the abdomen, it was found that the course of the colon was entirely different from the usual arrangement. The cæcum lay in the normal position. The colon ascended on the right side to the lower surface of the liver, where, doubling on itself anteriorly, it passed downward; and when again in the right iliac region passed transversely across the hypogastric zone to the left iliac region. Here it turned upward, passed up to the left hypochondriac zone along the anterior wall of the abdominal cavity, where it doubled on itself posteriorly, and passed down to the sigmoid flexure. The gastro-colic omentum, usually insignificant in measurement, extended here six or more inches along the longitudinal axis of the body. The great omental apron was represented by a mere rudiment seen along the lower surface of the transverse colon.

Lifting up the transverse colon, another singular condition presented itself, explaining the unusual course of the colon. The transverse meso-colon was present, but entirely unattached to the posterior wall of the cavity, and limited posteriorly by a curvilinear free margin. At its widest point this meso-colon measured three inches. In the folds of the meso-colon along the margin passed the left colic vessels to and from the descending colon. This unattached meso-colon formed the posterior wall of a large pocket, the anterior wall of which was represented by the broad gastro-colic omentum; and in this pocket lay all the small intestine except a few inches of the lower portion of the ileum. The weight of the transverse colon, the weight of the small intestine, and the unattached transverse meso-colon had caused, by the continued downward pressure and lack of support, the anomalous course of the colon.

As seen from the outline of a median longitudinal section, the arrangement of the peritoneum in



The heavy black line represents the course the peritoneum takes in the case described (Arranged from Leidy.)

this case prevented entirely the presence of the small peritoneal cavity which usually communicates with the great cavity by the foramen of Winslow. The peritoneal reflections in this case were as

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follows: From the surface of the stomach the peritoneum passed downward a considerable distance; it then passed in front of the transverse colon, formed the rudimentary great omentum, and then passed posteriorly and inferiorly over the transverse colon. It then passed backward to form the lower fold of the transverse meso-colon, but instead of attaching to the posterior wall of the abdominal cavity, it doubled on itself and returned to cover the superior portion of the transverse colon, and passing off the colon formed the inner layer of the rudimentary great omental apron. Thence it was reflected upward to the lower curvature of the stomach, passed over its posterior surface, and gained the lower posterior surface of the liver. Thence it passed to the posterior wall of the abdominal cavity, over the pancreas and duodenum, covered in the small intestine, regained the posterior wall, and passed downward to be reflected over the pelvic organs. This accomplished, it covered the anterior wall of the abdominal cavity, and was reflected along the lower surface of the diaphragm back as far as the position where it became the suspensory ligament of the liver. It passed over the upper surface, margin, and lower surface of that organ, and then passed over to the upper and anterior wall of the stomach.

Laterally the folds of the anomalous transverse meso-colon were reflected as usual over the ascending and descending colons.

Unfortunately, the friends of the subject would not permit a permanent preparation of the anomaly to be made; and because of the rarity of the peculiarity, it was deemed proper to make a careful study and give an extended description of it.

JOHNSON'S QUANTITATIVE GLUCOSE TEST.

BY CHARLES F. ADAMS, M.D.
OF BORDENTOWN, N. J.

DR. JOHNSON has shown that an alkaline solution of glucose, when heated with a solution of picric acid, will reduce the bright yellow of the acid to a dark mahogany-red color, the depth of color being dependent on the amount of sugar present.

℞.—Glucose solution (gr. j to ʒj) . .	fʒj.
Liquor potassæ	fʒss.
Saturated sol. picric ac. (gr. 5.3 to fʒj)	♏xl.
Water	ad fʒiv.—M.

Put in a test-tube, mark the height of the mixture on the side of the tube with a file or other instrument, boil sixty seconds, cool by immersing the tube in cold water, and, if any loss by evaporation, add sufficient water to bring up to the line marked on the tube. The color obtained by this reaction is due to the reduction of as much picric acid to picramic acid as one-eighth grain of glucose, the amount present, will reduce.

Thus, having made a standard solution, we take a drachm of the suspected urine and add the liquor potassæ, acid, and water, and proceed as above. A comparison is then made between the resulting fluid and the standard solution, by means of the picro-saccharometer, which consists of a graduated tube of ten and one hundred equal divisions, with a shorter tube containing the standard solution clamped to one side of it. (See figure.)

Into the graduated tube a portion of the liquid to be tested is introduced to the ten-division mark. Should the two agree precisely in color, the suspected urine will have contained one grain of sugar to the ounce. If the mixture is darker than the standard solution, then add distilled or soft water cautiously, shaking until the color reaches the standard: then read off the degree of dilution. Each ten degrees of diluted fluid equals one grain of sugar to the ounce of urine. Thus, if ten degrees were enough, then one grain per ounce; if thirty degrees were required, then three grains per ounce.

The amount of acid used in the test will not reduce more than six grains of sugar per ounce; hence, in using the test when the scale indicates the maximum amount the urine should be diluted with an equal amount of water, and the operation repeated, care being taken to note the number of times the urine was diluted, in making the final estimate.

In making a series of fifty trial tests of urinous solutions of glucose of varying strength, unknown to myself, I calculated exactly the amount thirteen times; within a quarter of a grain of the amount, seventeen times; within half a grain, ten times; within three-quarters of a grain, six times; within one grain, four times. Calculated too low, eighteen times. Calculated too high, nineteen times. Average amount missed per ounce, one-third of a grain.

As will be seen, the estimation varied almost equally in the number of times it was too high and too low, showing the fault to be with the operator, and not the test.

As the color of the glucose solution is not permanent, Dr. Johnson imitates it with a solution of ferric acetate, made by the following formula:

℞.—Liq. ferri perchloridi . . .	fʒj.
Liq. ammonii acetas,	
Ac. acetic glacial (sp. gr. 1.065) .	āā fʒiv.
Liq. ammoniæ	fʒj.
Aq. destil.	ad fʒiv. *B* M.

The ingredients are all of the strength of the British Pharmacopœia. I therefore have substituted the following:

℞.—Liq. ferri chloridi . . .	fʒj.
Ammon. carb.	ʒj.
Ac. acetic	fʒv.
Aq. destil.	ad fʒiijss.—M.

These are of the strength prescribed by the United

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States Pharmacopœia, and make a solution of the same shade.

A picro-saccharometer can be constructed very neatly by clamping to a 100 c. c. glass-stoppered "mixing bottle" a "German weighing bottle," both being standard bottles and sold by dealers in chemists' supplies. It is well to have them of the same diameter, although it is not necessary, as the ferric solution must be standardized by first comparing with the standard color solution made as before described. If the containing bottle be of greater diameter than the measuring, then the solution may be rendered lighter by adding water; and if of less diameter, it will be necessary to add a few drops of the liquor ferri chloridi.

As the solution of acetate of iron is bleached when long exposed to the light, I place the bottle containing the standard solution in a test-tube rendered impervious to the light by painting the inside with asphaltum varnish, the tube being of such diameter as will catch the lip of the standard bottle. Then, having the top of the stopper also coated with varnish, the solution is readily protected from light when not in use.

I found it much more convenient to measure five cubic centimetres of each liquid with a pipette of the proper size, than to measure the number of minims in a graduated measure. It is also easier to remember the five cubic centimetres than a different number of minims for each article.

With the following alterations in the strength of the solutions, we get the same result by taking five cubic centimetres of each:

℞.—Urine	5 c. c.
Liq. potassæ (sp. gr. 1.036)	5 c. c.
Sol. picric acid (gr. 3.5 to ℥j)	5 c. c.
Water	5 c. c.

Mix and proceed as before.

In standardizing the iron mixture, greater accuracy can be obtained by holding the solutions against a translucent substance, such as a pane of ground glass, or a sheet of white paper held between them and the direct light. The same precaution should be taken ever after, as the light transmitted through clear glass makes the standard iron solution look as much lighter as would be equivalent to three-quarters of a grain of glucose to the ounce in the test through translucent glass; the color of the *urine* solution is the same in either form of light.

An impromptu instrument that answers very well can be made by taking two test-tubes of equal size, and making eight or ten equal division marks on one tube, and using the other tube to hold the standard solution. In testing, place enough of the boiled urine in the tube to fill it up to the first mark, then dilute as before described in using the picro-saccharometer. Each mark will represent a grain of glucose to the ounce.

As Dr. Johnson has shown, we may reduce the amount of sugar per ounce to the proportion per cent. by a simple proportion, in which the first term is 455.7 grains—the weight of an ounce of water at 0° Cent., 100 the second term, and the quantity of sugar per ounce the third. Thus, if there be twenty grains of sugar to the ounce, then as 455.7 : 100 :: 20 : 4.3; or we may multiply the number of grains by the decimal 0.219; grains $20 \times 0.219 = 4.3$ per cent.

HOSPITAL NOTES.

PHILADELPHIA HOSPITAL.

A KYPHOTIC PELVIS.

Reported by BARTON COOKE HIRST, M.D.,
OBSTETRICAL REGISTRAR.

WHILE this deformity is not infrequently met with, a typical case is perhaps sufficiently rare to merit a short description. Frau Z., born in Posen, æt. thirty, has had five children, three of whom were stillborn. Her labors have all been tedious. A successful operation was performed seven years ago, in Schröder's Clinic in Berlin, for a vesico-vaginal fistula that followed her fourth confinement. She is but four feet seven inches high, although in other respects strongly built, and upon the lower part of her back is a projection formed by the last three lumbar vertebræ, which, she says, is the result of a fall in early infancy. The measurements of the pelvis are as follows:

Distance between iliac spines (ant.)	26 cm.
" " " crests	28 "
Right diagonal	20 "
Left "	21 "
External conjugate (Baudelocque's)	18 "
Diagonal "	11¼ "

Distance between the tuberosities of the ischia, 12 cm.; the width of the sacrum at the sacro-iliac junctions, 6 cm. Internally, per vaginam, it is possible to feel the bifurcation of the aorta and the powerful pulsations of the common iliac arteries. There is no spondylolisthesis, although the last lumbar vertebra is slightly displaced backward. The uterus, owing to the diminished length of the abdominal cavity, is longer in its transverse than in its vertical diameter, and the child lies transversely, with its head to the left. The woman is in the eighth month of pregnancy.

MEDICAL PROGRESS.

LAWSON TAIT'S METHOD OF CLEANSING THE PERITONEUM.—At a recent meeting of the British Gynecological Society, MR. LAWSON TAIT gave an address, with demonstration, of his method of washing the peritoneum with copious streams of warm water. The trocar which he employs for tapping the cyst resembles a large double-eyed catheter terminating in a rounded but flattened and sufficiently sharp point. To this is attached a long India-rubber tube. This instrument he also employs as a siphon for washing out the peritoneal cavity. Having first immersed it in a ewer of water of the requisite temperature, an attendant raises it when required, and the water flows through the trocar in a steady stream, which can be directed upon any part desired. Mr. Tait prefers this method to the excessive use of sponges, especially in cases where the peritoneum and intestines are smeared with the adhesive colloid material from a friable cyst. This substance is readily soluble and easily

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washed away by the warm water. The water is clean water taken from the tap, and no special antiseptic precautions are employed.—*British Medical Journal*, April 9, 1887.

FATAL RESULT OF INTRAUTERINE MEDICATION.—DR. OTTO ENGSTRÖM, of Helsingfors, relates the following case in a Swedish medical journal. A woman, aged thirty-seven, had suffered from persistent metrorrhagia. The uterus was retroflexed, but no signs of past or present inflammation could be discovered. It was replaced and scraped out with a Simon's sharp spoon, two small spoonfuls of hyperplastic tissue being removed. A solution of iodine in iodide of potassium at 45° C. was then injected, the relative proportions of iodine, iodide of potassium, and water, being 1, 2, 30. No fever, and scarcely any pain followed. In five days' time a second injection was used, the temperature being 40° C., and the relative proportions of iodine, iodide of potassium, and water, 1, 2, 10. No pain was experienced, and the patient walked up and down stairs. On the evening of the second day, however, a rigor came on, followed by pyrexia, abdominal tenderness, diarrhœa, and convulsions, death occurring two days later. At the necropsy there were found broncho-pneumonia, chronic œdema of the lungs, endocarditis, and purulent peritonitis. The substance of the uterus was soft, friable, and gray-colored, containing specks of blood and lymph. The peritoneum over the uterus was of a yellowish-red color, and covered with puriform matter. The Fallopian tubes and their fimbriated extremities were not dilated or particularly reddened, and the mucous membrane presented no abnormality. The os uteri was too small to admit a fine probe. A large quantity of pus occupied the peritoneal cavity. Dr. Engström does not think any of the injection can have passed into the tubes, still less into the peritoneal cavity, and believes that the fatal peritonitis was due to an extension of the inflammation directly from the uterine wall to the peritoneum.—*Lancet*, April 16, 1887.

ARSENIC AND LITHIA IN DIABETES.—At a meeting of the Paris Société de Thérapeutique (February 23d) DR. MARTINEAU recommended the following treatment, with which, he said, he had cured sixty-seven out of seventy patients suffering from arthritic diabetes:

Carbonate of lithium . . .	3 grains.
Arseniate of sodium . . .	$\frac{1}{10}$ grain.
Carbonic acid water . . .	2 pints.

Effect the solution under pressure. The effervescing liquid is to be drunk at meals, mixed with claret, and the foregoing dose is to last for at least three meals, being taken at the two principal meals of the day, customary in Paris. No change of diet is necessary. Dr. Martineau's fellow members—Dr. Dujardin-Beaumetz among them—were somewhat sceptical about the value of the treatment, but it is so simple and easy that it can be given a trial when the patient is not dangerously ill. —*Therapeutic Gazette*, April 15, 1887.

IODIZED STARCH AS AN ANTISEPTIC.—ENGLAND describes his preparation and use of this substance as follows in the *American Journal of Pharmacy*, for April, 1887:

Apropos of the subject of antiseptics, the author was led some months ago to advocate the use of *iodized starch* as an addition to our rapidly growing list of these compounds. Reasoning that the antiseptic activity of iodoform and bismuth subiodide must depend, in part or in whole, upon the iodine freed in their decomposition, in contact with decomposing putrescent organic matter, it was thought that if an iodized compound, readily decomposable, was subjected to the same conditions, that it would induce the same healthful process in the latter case as well as in the first. Full experience has demonstrated the value of the theory in this instance, and iodized starch is now used daily in our hospital practice, and recognized as a valuable adjunct in certain forms of antiseptic treatment. It is applied in the same manner as other antiseptics, namely: first washing out the wound with pure water, and drying out as far as practicable, then thoroughly dusting in with iodized starch and covering the wound, even beyond its outer edges. The applications are generally made in the morning and evening.

In the removal of the dressings the absorption of the iodine is most strikingly shown. Whereas, in the central parts of the wound, where the exuding pus or matter has come in contact with the bluish-black powder, the same has become wholly decolorized, and shows the white color of the starch, yet, around the outer limits of the dressing, where no excretive matter has exuded, the bluish-black color remains unaffected.

Then comparative trials with iodoform, subiodide of bismuth, and iodized starch have demonstrated that it possesses valuable antiseptic qualities as a dressing, and though it may not be superior to the first two named, yet, at the same time, it has occasionally succeeded where they have given unsatisfactory results.

In its preparation the pharmacopœial method, given under "Amylum Iodatum," has been followed, namely, the trituration of 5 parts of iodine with a small quantity of distilled water, and the gradual addition of 95 parts of powdered starch, until the compound has assumed a uniform, bluish-black color. Then dry at a temperature not exceeding 40° C. (104° F.), powder and bottle or box.

HYGIENE OF THE EYES AMONG SCHOOL CHILDREN.—*The Sanitarian* for March, 1887, quotes DR. LINCOLN, author of the Lomb Prize Essay, as follows:

In school work we should require (1) a comfortable temperature, and especially let the feet be kept warm and dry; (2) good ventilation; (3) loose clothing; (4) erect posture; (5) little study before breakfast, or directly after a hearty meal; none at all in twilight or late at night; (6) great caution about study after recovery from fevers; (7) light abundant, but not dazzling; (8) sun not shining on the desk, or on objects in front of the pupil; (9) light coming from the left hand or left and rear; under some circumstances from in front (no light from the right of the pupil permitted); (10) the book held at right angles to the line of light, or nearly so; (11) frequent rest by looking up; (12) distance of book from eye about fifteen inches.

THE TREATMENT OF ENDOMETRITIS.—DOLÉRIS, of Paris, concludes his articles in the *Archives de Tocologie*, March 15, 1887, as follows:

In the majority of cases of chronic endometritis, the

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process of sponging or swabbing out the uterus with cotton saturated in glycerine-creasote, one-half or one-third, was employed. To apply this properly, the uterus should be pulled down; if possible, the cervical canal should be dilated, this may be done advantageously with tents soaked in creasote and glycerine. If sponging or swabbing prove inefficient, curetting the interior of the uterus should be employed, and afterward injections of suitable antiseptics.

Doléris has treated, upon these principles, 339 cases. The treatment has been unattended by accidents, and the large proportion of the cases resulted favorably.

AN OINTMENT FOR ECZEMA.—We quote from the *Journal of Laryngology* for April, 1887, the following formula for Van Harlingen's eczema ointment:

℞.—Glycerol. plumbi subacetat. (Squibb)	ʒss.
Glycerin.	ʒjss.
Ung. aq. rosin.	ʒj.
Ceræ albæ	q.s.

Ft. ung.

HERNIOTOMY UNDER COCAINE ANÆSTHESIA.—SOUTHAM, at the Manchester Infirmary, performed the operation mentioned, as follows: "Twelve drops of a ten per cent. solution of cocaine were injected into the subcutaneous tissue over the hernia, and five minutes afterward the operation was commenced and carried out in the usual way; the sac was opened, and its contents, which consisted of a knuckle of congested intestine, readily returned into the abdomen after the stricture had been divided. The sac was separated from the surrounding tissues, and a catgut ligature having been secured round its neck, it was removed on the distal side of the ligature. The operation, which lasted about twelve minutes, was almost painless; the patient was just sensible of the skin incision, and complained of a little pain while pressure was being made upon the bowel during its reduction, but the other steps of the operation appeared to be hardly felt."—*Medical Chronicle*, April, 1887.

MICROÖRGANISMS UNDER THE ANTISEPTIC DRESSINGS.—STÄHELI has investigated this subject extensively, and his results are quoted by the *Medical Chronicle*, of April, 1887, as follows: "As the question of the occurrence of microörganisms under antiseptic dressings has been variously answered by many observers (Ranke, Busch, Hirschfeld, Fischer, and others), the author has investigated the subject afresh, and with newer methods. His researches are based on fifty-nine cases (amputations, herniæ, removal of tumors) observed in Professor Socin's Clinic. In that clinic the operation-room is disinfected with carbolic acid, so are the instruments; the sponges are kept in a five per cent. carbolic solution, and are disinfected with seven per cent. zinc milk (zinkmilch, of which the composition is not given). For irrigation, 1 : 1000 sublimate solution, or 1–2 per cent. zinc milk is employed. On the line of suture, zinc paste, over that gauze saturated with zinc milk, with pads of cotton-wool, or turf moss cushions. During the first change of dressing, with a platina needle that had been submitted to a red heat, some secretion was taken out of the deeper part of the drainage tube and inserted into peptone glue, gelatine, or blood serum, or they were used for the preparation of dry specimens. Besides this, a small piece of tissue was taken with a sterilized scissors from the wound (after Kümmel's method) before the application of sutures, and implanted into the nutritive substance. The microscopical examinations were made with a Zeiss' immersion $\frac{1}{18}$ and Abbe's illuminator. Of the fifty-nine cases, twelve healed by the second intention, and in all of these microörganisms were found. In the remaining forty-seven healing took place by first intention; in fifteen microörganisms were discovered, four times they were only found in the dry preparations —in the latter cases the organisms were dead, and did not develop in the cultures. The antiseptic method therefore is able to keep the microörganisms from the wound. The microörganisms found in the wounds which healed per primam and per secundam were cocci, bacteria, and bacilli, either alone or in combination. Pathogenity, therefore, does not depend on the form or quality of the microörganisms. The influence produced by their number can only be determined by experiments on animals, and only very imperfectly by microscopic examination of the secretions. The infection of the wound is brought about chiefly by contact. The behavior of the secretions is a chief factor in influencing the healing. When drainage is not perfectly free, microörganisms in large numbers, and of the most varied kind, are found. The relation of the fever is not quite constant. In twenty-two of forty cases, in which microörganisms were found, healing went on without any elevation of temperature; and in four of seventeen cases, in which no fungi were discovered, fever occurred. The gravity of the operation exercised a very distinct influence on this symptom. Of the wounds that healed per secundam only in those that resulted from small operations was there a normal temperature. The portions of tissue removed before the application of sutures showed almost always —nine of eleven cases—that fresh wounds already contained microörganisms. Only in one case on the third day new bacteria were found, in addition to those previously discovered in the tissues. These microorganisms increased in number as time advanced. The author thinks that the microörganisms found during the process of repair have generally gained access to the wound at time of operation, and the antiseptic means employed do not in all cases prevent this. A wound may contain non-pathogenic microörganisms without any detriment to the healing process. Of the pathogenic fungi, which may act injuriously, staphylococci (aureus and albus) occur most frequently, and wound secretions, when stagnant, are the best soil for the development of these microörganisms."

ANTI-STRUMOUS RESOLVENT LOTION.—DESCROIZITTES is quoted by the *Journal of Laryngology* for April, 1887, as prescribing the following:

℞.—Chloride of sodium . . .	ʒ10.
Sulphate of magnesia . . .	ʒ¼.
Tincture of iodine . . .	ʒ¼.
Distilled water	ʒ37½.

Compresses soaked in this solution are applied to strumous enlargements.

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BINIODIDE OF MERCURY AS AN ANTISEPTIC.—DR. P. K. BOLSHESOLSKY, of St. Petersburg (*Vratch*, No. xi., 1887, p. 220), from numerous experiments made by himself in Professor A. P. Dobroslavin's laboratory, concludes that biniodide of mercury is a more powerful and less poisonous antiseptic than corrosive sublimate. Thus he fully confirms the observations of Bernhardy. A solution of 1 : 4000 destroys putrefaction microbes more completely than a sublimate solution of 1 : 2000. The biniodide dissolved in a solution of iodide of potassium was recently tried, with apparently good results, in three cases of laparotomy, under Professor A. I. Krassowski. For washing the floor, a solution of 1 : 4000 was employed; for disinfecting the hands, 1 : 2000; for instruments, 1 : 2000 and 3000.—*British Medical Journal*, April 9, 1887.

METHYLAL.—DR. B. W. RICHARDSON has written, in the *Asclepiad* No. 13, as follows:

In my report of 1869 I showed that methylal, which is very soluble in water, could be administered by the mouth when diluted with water, or by hypodermatic injection, and I have prescribed it occasionally, as a mixture several times. I usually begin with a fluid drachm dose, mixed with either glycerine or syrup of orange flowers and distilled water. Example:

Methylal, pure	℥xj.
Syrup of orange flowers	℥iv.
Distilled water	℥vj.

Mix. To make a solution of 6 ounces; of which let 1 to 2 fluid ounces be taken in a wineglassful of water as directed. The dose may gradually be increased to twice the above quantity or more.

In action, as a medicine, methylal lies between alcohol and anhydrous ether. It quickens the action of the heart with reduction of arterial pressure; it makes the respiration slow and deep; it induces a tendency to sleep; and it is a sedative to pain, but not to a very deep degree. On the whole, it would be best to keep it in the group of anodyne antispasmodics, in which I originally put it. It causes very little muscular excitement and no vomiting, but after long inhalation of its vapor it produces a free flow of saliva. As it mixes well with alcohol and with ether it might be administered with either of these agents; and it might also be given with amyl nitrite for the relief of colic, asthma, angina pectoris, or tetanus; but before it can come into general use it must be reduced in price.—*American Journal of Pharmacy*, April, 1887.

AUTO-CÆSAREAN SECTION.—AISENSTATT, of St. Petersburg, reports the following case in the *Vratch* for 1886, No. 42:

The official inquest found that a peasant woman, having been five times pregnant previously, had conceived the sixth time unlawfully, in the absence of her husband. Although upon his return she was kindly treated, she had made the incision while in the upright position, and extracted the child; it was of the male sex, twenty inches long, and weighed six pounds; it lived twenty-four days.

The mother was found by the daughter, and still possessed the strength to go to the stove (or oven), and there lay down. The oven answers the Russian peasant oftentimes as his bed. After some time she left her position, but fell exhausted; she died that night from hemorrhage.

The autopsy found the body of a young, very anæmic woman; in the *linea alba* an incision five inches long, with cleanly cut edges, between which no blood-clots remained.

The uterine wound was straight, made in the lower portion of the uterus, and four and a third inches long; the uterus was enlarged, the *os uteri* permeable for four fingers.

In addition to this case, one reported by Eon, occurring in a negress, in 1769, is cited; and also the "Viterbo" case, both of which recovered.

THE FERTILITY OF WOMEN.—SCHBANKOW concludes as follows in an article in the *Zeitschrift für Geburtshilfe und Frauen Krankheiten* (Russian, 1887, No. 1):

His investigations were upon the influence on the fertility of women exerted by absence, at different intervals, of their husbands. In the districts of Jaroslawl and Kostrowa, and in many other Russian provinces, the greater portion of the male population of the villages is obliged to seek work in other localities during the summer, twelve per cent. of the entire population thus temporarily emigrating.

Women whose husbands remained at home during the entire year averaged 9.2 children each, excepting the sterile women, who were 3.33 per cent. of the whole number; women whose husbands left their homes to procure work averaged 5.2 children each, excepting the sterile, who were 11 per cent. of the whole number.

The writer finds the cause for these facts, not in bad hygienic surroundings, but in the severe manual work which falls upon the women in the absence of the men, tending to produce uterine disease and facilitate abortion, and also to produce amenorrhœa; in the interruption of the sexual relations thus produced; and in the frequency of syphilis and other venereal diseases, as contracted by men in strange towns, and communicated to their wives.

TREATMENT OF SEVERE MALARIAL INFECTION.—DR. MANSON, of Richmond, Va., in a paper published in the *Transactions of the Medical Society of Virginia* for 1886, described the following plan of treatment which had been very successful in his hands:

Should the employment of morphia have failed to allay the pain, nausea, and vomiting, it should be repeated, but allowing at least four or five hours between the administration of the doses, whether introduced beneath the skin or into the rectum. At bedtime—say, at 9 or 10 o'clock—it is our invariable rule to administer a cathartic dose of calomel and rhubarb of 10 or 12 grains each. At some period before or after midnight the fever will generally be found more or less to decline. We prefer this period for the commencement of the abortive means, because our experience teaches us that quinine, the principal remedy, is better borne, and produces its salutary effects in a more decided and complete manner than at any other time. We now, therefore, usually administer from 15 to 20 grains of the sulphate of quinine at a single dose, in pills or capsules,

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or diffused in a wineglassful of water. *We regulate the dose by the degree of fever present.* If it is *intense*, we administer the *larger quantity;* if *very moderate*, the *lesser will answer.* Under the combined action of the mercurial and quinine, free evacuation of the bowels will usually occur, but rarely excessive. Three or four hours are now suffered to elapse. The condition of the patient will now be found generally much improved. The gastro-hepatic and cerebro-spinal pains are either removed or mitigated, the pulse becomes less frequent and more soft, the skin relaxed and moist, and the gastric irritation subdued. We therefore repeat the quinine in diminished doses of 5 or 6 grains every three or four hours, until the period of chill has passed, generally exhibiting altogether from 25 to 40 grains before that time. Under this simple plan of treatment, remittent fever is certainly and safely cured. We have in this manner arrested the disease in many hundred cases, in one night.

ALARMING HEMORRHAGE AFTER TONSILLAR EXCISION ARRESTED BY TORSION OF THE ARTERY.—DR. CLINTON WAGNER reports the following case in the *New York Medical Journal* of April 16, 1887. Madame B. F., aged about thirty, an opera-singer by profession, consulted me for sore throat. I found the left tonsil greatly enlarged, and she informed me that it frequently became acutely inflamed. I recommended excision. The gland was partly covered anteriorly by the column of the soft palate, and extended so far downward into the pharynx that I had great difficulty in encircling its inferior portion within the ring of the guillotine; finally I succeeded in removing almost the entire gland. A gush of blood followed, but apparently not greater in quantity than is usual after this operation. The bleeding increasing instead of lessening, I applied to the cut surface of the gland the persulphate of iron, which failing, I resorted to compression, but I discovered afterward that it had not been exerted in the proper direction. Nearly an hour had elapsed since the operation, a large amount of blood had been lost, vomiting of the blood, which had found its way into the stomach, ensued, and the patient was rapidly losing strength. I cleansed the parts thoroughly of clots of blood, but, not finding the source of bleeding, I forced the tongue, by means of the depressor, upon the floor of the mouth as far as possible. In the space between the pillars of the soft palate, apparently springing from the root of the tongue, I discovered an artery of considerable size, bleeding freely and with such force that the blood was projected over and beyond the depressed tongue to the opposite side of the mouth. The bleeding vessel, now located, was, without much difficulty, taken up with an artery-forceps and twisted, and all further hemorrhage was effectually controlled. I think the divided artery was either the tonsilar branch of the facial, or the largest of the pharyngeal branches of the ascending pharyngeal, both of which are given off from the external carotid.

ANTISEPSIS BY CORROSIVE SUBLIMATE IN TRACHEOTOMY.—The method of WATSON CHEYNE, of London, is as follows: The trachea must be opened more freely than usual, with the primary object of inspecting the interior of the trachea. If the trachea is healthy, it will present a bright red appearance; if membrane be present, it will have a dull gray color. When no membrane has been formed, either a canula is inserted into the lower angle of the wound and the trachea filled up above with strips of thin rag soaked in a watery solution of bichloride of mercury (1 in 2000), the process being repeated every two hours; or, the trachea is kept open with Golding Bird's dilator, and the surface brushed from time to time with a weak solution of the perchloride. There are contending advantages in each method. If the membrane has spread to the trachea, it is pulled off with dissecting forceps, the resulting raw surface, and especially the spreading edge, being touched with the 1 in 500 bichloride solution.—*Journal of Laryngology*, April, 1887.

POMADE FOR CUTANEOUS DISORDERS DURING PREGNANCY.—MONIN, in *L'Union Médicale*, of March 29, 1887, gives the following formula:

Zinc. oxid. pulv.	gr. 3.
Hydrarg. ammoniat. (white precipitate)	gr. 1½.
Ol. theobromi,	
Ol. ricini	āā ʒ 2½.
Ol. rosæ	gtt. 10.

This may be applied to the face morning and night.

WHEN SHALL TRACHEOTOMY BE DONE?—RANEON DE LA SOTA Y LASTRA, of Seville, in the *Journal of Laryngology* for April, 1887, after citing the statistics of the principal hospitals of the world, concludes as follows:

"Undoubtedly, too many patients are allowed to die from indecision on the part of the operator. It should be a golden rule to *operate early, slowly*, and *carefully*, and not to halt between two opinions until the child has passed from a comparatively comfortable stage 'in extremis.' There is probably no operation in which indecision is more fatal. This indecision is partly due to the failure of the operator to realize the right moment for action, and partly to fancied dangers as to the operation itself. Trousseau's maxim, that a badly performed operation, with skilful after-treatment, will lead to a satisfactory result in many a case in which an operation, skilfully performed as possible, left to careless after-treatment, would have been followed by fatality, should be always borne in mind. The country practitioner should always be able to perform tracheotomy, and should have the necessary instruments always in his possession. The prognosis of his case may become absolutely hopeless while he is occupied in sending miles for the skilled surgeon, and he should have sufficient knowledge of anatomy and surgery to be able to act promptly in an emergency."

AN OINTMENT FOR OBSTINATE ACNE.—The following is known as Wilkinson's ointment:

℞.—Naphthol.	ʒ 2½.
Sulphur. præcipitat. . . .	ʒ 12½.
Vaseline or lanoline,	
Potassium soap	āā ʒ 6¼.

M. ft. unguentum.

Sig.—Local use daily.

—*Revue de Thérapeutique*, March 15, 1887.

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ELECTRICITY IN THE TREATMENT OF CERVICAL CATARRH.

THE use of electricity in the treatment of diseases of women constitutes one of the most important advances in medicine. It is probable that we are only beginning to recognize the value of this agent, and that the future will show that it has a much greater utility than has yet been given to it.

From Lutaud's *L'Obstetrique et la Gynecologie en* 1886, we learn that JOURET treats catarrh of the neck of the womb by faradization of the uterus, and galvano-caustic applications to the cavity of the neck. The purpose of the former is to excite contractions of the uterus, and thus relieve its engorgement and the hindrance to circulation, a condition so liable to occur from the anatomical structure and functions of the organ. In all autopsies of chronic endometritis there are found not only lesions of the mucous membrane, but also of the parenchyma. It is claimed that electricity, by exciting contractions beginning at the internal orifices of the oviducts and at the fundus, relieves the stasis in the muscular parenchyma; and that the uterus is subjected to interstitial massage which restores its lost tonicity. It not only produces these results, but by its dispersion upon other pelvic organs, it also exercises a favorable influence upon their circulation and innervation.

For the application Jouret directs that the patient should lie upon her back, with the pelvis somewhat elevated, and that the bifurcated positive pole (covered with moistened chamois skin) should be applied to each side of the recti muscles just above the pubes. The negative pole, having the form of a uterine sound, and covered with caoutchouc to a little more than an inch from its extremity, is introduced into the cavity of the neck, or of the body, if the internal os permits. Tripier's instrument is preferred; by it the number of interruptions may be made to vary from fifty to three thousand per minute, and the current can be graduated in tension and intensity. In uterine faradization the intensity of the uterine contractions should be progressively increased according to the sensations of the patient; but when the pain becomes decided, the intensity should be lessened. The duration of a sitting will vary from five minutes as the minimum to ten as the maximum, according to the sensibility of the person, or the atony of the uterus, the degree of the engorgement, and the length of time it has continued. After an application, if it be properly conducted, the patients, nine times out of ten, express themselves as feeling lighter and able to walk better.

That which Tripier has called the chemical galvano-caustic of the cavity of the neck, has been defined by him as a potential cauterization of the cervical tract by the continuous current. Jouret does not regard this as in all cases indispensable, but it is necessary sometimes in consequence of the development of the glands of the cervix, forming the so-called ovula Nabothi; sometimes by the formation of hypertrophies of the mucous tissue which give origin to a thick, creamy, purulent discharge, or which, when ulcerated, cause hemorrhages. In the application of the constant current, a large plate of tin, covered with agaric or chamois which is thoroughly saturated with cold water, is placed upon the abdomen, or upon the thigh, and is the positive pole. The caustic electrode, the negative, is then introduced into the cervix, which is exposed by a speculum; if cauterization of the uterus is desired, the pole is passed into its cavity. Usually the intensity of the current is from fifteen to twenty milliampères, and the sitting is from five to ten minutes. The cauterization is, if necessary, repeated according to indications—that is, until the disappearance of the abnormal secretions arising from inflammation of the mucous membrane and from the hypertrophied glands.

Jouret states that he applies this electric treatment almost invariably in chronic endometritis, and that a long experience has led him to prefer it to any other method of treatment, because of the facility of execution and the constancy of the favorable results.

The favorable effects from faradization of the engorged uterus are so generally recognized by those treating diseases of women that it is not necessary to add a word to the commendation of this treatment given by Jouret. If a like satisfactory result can be had in chronic endometritis from galvanization by others as well as by Jouret, this hitherto obstinate disease will cease to be an opprobrium to the profession.

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PROFESSIONAL REPUTATION.

THE desire of praise belongs to man in common with many of the inferior animals. The education of some of these animals is chiefly effected by appeals to this desire, rewarding, for example, the dog, when teaching him to retrieve by kind words, and possibly some food dainty; or the horse, when teaching him to stand without hitching, in a similar way. It also is of large application in educating the child. It furnishes one of the most powerful motives to industrious, philanthropic, or heroic action, on the part of the adult, no matter in what calling he is engaged. The physician is by no means exempt from the ambition for reputation; and although Milton did refer to fame as the last infirmity of noble minds, it is one of the most powerful means, not only in advancing his influence and capability for doing good, but of promoting the interests of the profession. Having in a previous number of THE NEWS made a few observations upon some of the financial aspects of a medical life, addressed more especially to those entering upon practice, we propose now, very briefly, to refer to a few points relating to professional reputation.

One thing must at this day be very obvious to the thoughtful physician, and that is, that a professional reputation cannot be so extensive as it has been in past years. The time has gone forever when a great ovariotomist, like Washington Atlee, could claim the continent as the abode of his *clientèle*, and still more remote is that when patients with stone would travel two thousand miles or more, to an interior town in Kentucky, to have lithotomy done by Dudley. The reason is, there are Atlees and Dudleys in almost every State in the Union, men who can do equally well the operations they did; and, so far as ovariotomy is concerned, with even a greater success. There is less concentration of reputation in a few individuals than there once was; there are so many competitors that the prize has been divided, and a larger number receive a share. This aspect of the question certainly is encouraging to the young physician, for the prizes now are many instead of few. How numerous the little worlds in the one great world! Some of these subdivisions are very small absolutely, but to those who dwell in them they are more than all other worlds. We read the *Smithville Weekly*, and the doings and happenings in that excellent village justly occupy a larger space than those of the greatest city upon the continent, or upon the globe; while, on the other hand, a newspaper of one of those cities may not have occasion to mention Smithville from the beginning to the end of the year, may, indeed, remain always ignorant of its existence. To be the chief surgeon, physician, or obstetrician in the latter, is something, but to occupy such position in the county is more, and in the State still more; there is a regular gradation in honor, and usually all the steps must be taken in order, none omitted, as the boy wins his first prize in the common school, then in the academy, finally in the college.

If one hopes for that larger fame which shall make his name honorably known throughout the country, and even in foreign lands, an object attained by so few, there is an aspect of the question which is not at all encouraging to the ambitious who seek laurels while they live. Many of the greatest medical reputions have been posthumous. Think of what honors are paid to the memories of Harvey, Jenner, and McDowell, and how little fame these men had during their lives. The truth conveyed in the familiar couplet as to the Greek poet has at least approximate illustrations in many medical histories:

"Seven wealthy towns contend for Homer dead,
Through which the living Homer begged his bread."

In the further consideration of the subject, we remark that the reputation sought by the young doctor is usually first among the people, and next with fellow practitioners. To secure the former, honest, wise and faithful work at sick beds is the only legitimate way. Sick people care but little about individuals or places of education, when they send for a physician, but they wish to be cured pleasantly, safely, and quickly, as the old Latin saw runs. Now he who cures thus is certain of numerous clients; he may have to wait for them, but they are coming as sure as fate. Let him beware of exciting any personal hostilities, or begetting any professional antagonisms, for success is a plant which thrives best, grows strongest and largest amid calm and sunshine, not in darkness and storms. Even if Z makes a correct diagnosis, after several or all of the preceding capitals of the alphabet have failed, and cures the patient, that is glory enough without depreciating the character of his professional associates; the time has been, when he himself made similar failure, and such time is coming again. Charity for the errors of others, and a consciousness of his own fallibility, furnish a condition of mind which every physician should have. The reputation built upon the ruins of that of another, has a very insecure foundation, and is liable at any time to fall.

So, too, the young physician should beware of criticising the practice and opinions of others. In the first place, has he all the facts and statements necessary to a just judgment? Then does he know the lessons of the personal experience of that individual out of which the opinions and practice have grown, or by which they have been modified? Finally, behind all these merely external things, there is the personality, the individual himself, and we can no more quarrel with that than we can with

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the shape of his nose, his stature, or his weight. There is still another reason for abstinence from criticism by the young physician, and that is his own limited knowledge: possibly the opinions which he now holds as sacred truths next year may be divested of their sanctity and regarded as only probabilities, the next they will be possibilities, and a while after they are cast as rubbish to the wind. The *rôle* of critic is one of the highest in the profession, and belongs rather to the wisdom of old age, wisdom won by long years of careful study and patient observation, than to the hasty and imperfect generalizations and inexperience of youth; moreover, the older a physician is, the less disposed he is to criticise the work of others.

Participating in medical societies and contributing to medical publications is a legitimate means of acquiring reputation among doctors. Honest, truthful work of this sort is sure to be recognized, while falsehoods will sooner or later be known, and once a man is set down as a liar by his professional brethren, he can never acquire any desirable professional reputation. There are counterfeit notes and coins which so coarsely vary from the genuine, that their character is at once recognized, while others are so well executed that they must be subjected to an expert to ascertain whether they are true or false. It might astonish some who hasten to publish their marvellous successes in medicine, in surgery, or in obstetrics, asserting, it may be, an improbable, or even an impossible number of cases attended, or of operations performed, or results occurred, how quickly some hearers, or readers at once say, "That man is lying." In some instances, the liar for a time succeeds, but he is sure to come to grief finally; the medical shores are strewn with the wrecks of those who sailed under false colors, and while some may pity, none are so poor as to do reverencé to these wrecks.

It is doubtful whether work done in societies or journals solely for the purpose of getting practice has received that condemnation it deserves. A man had better hold his tongue unless he can speak, or believes he can, for the instruction of others, and any bidding for practice is not reputable. A monograph upon a prevalent malady, proclaiming the author's experience with it, and his facility and success in treating it, mailed at his own expense to thousands of practitioners, is scarcely less an invitation for sending patients than that of the professor who throws his arms around the candidate for gradution, exclaiming, "My dear fellow, I am delighted with your examination. Send me all your consultations."

The young physician should beware of making the secular press his ally. The better class of the profession shrink from newspaper notices, and are naturally suspicious of the ability, or of the moral characters of those whose names are frequently found in connection with patients attended or operations performed by them; newspaper doctors are, as a rule, quack doctors. Our great cities are not without some who thus endeavor to herald their professional exploits, but they are not recognized as the gentlemen of the profession, nor do they deserve success; sometimes this yearning for publicity arises from an overweening vanity, whose possessor is never happy unless people are talking about him, or from a desire to impart new life to a dying fame, just as the woman whose charms of face the years have taken away endeavors by enamelling and coloring to hide the wrinkles of age and restore the beauty of youth.

But no matter where or by whom done the reputation thus gained is very liable to be shortlived. On the other hand, the reputation founded in the grateful hearts of those whom he has relieved by his skill, and comforted by his kindness, founded, too, upon honest and useful contributions to medicine, and upon just and courteous treatment of fellow practitioners, is that to which the young physician should aspire, for it is that alone which endures.

THE FUNCTIONS OF THE THYROID GLAND.

THE relations of the thyroid to myxœdema, and the induction of a cretinoid condition after the extirpation of goitres, have stimulated physiologists to study anew the functions of this gland. J. R. EWALD, of Strassburg, records some remarkable experiments in the *Berliner klin. Wochenschrift*, No. 11, 1887, which, without leading to any positive conclusions, indicate the direction which research may take. In the dog removal of one thyroid—the two halves are distinct—is not followed by any symptoms. After double extirpation remarkable phenomena occur in three or five days. As discovered by Schiff, there are curious periodic contractions of the muscles, sometimes general, over the body, but, according to Ewald, usually confined to two regions, the muscles of the shoulders and the temporals. The contractions induce a stony hardness of the muscles and follow each other with great rapidity.

Another curious symptom is the vermicular movement of the lingual muscles. The animals are apathetic, move slowly, and are with difficulty aroused. Schiff holds that the thyroid forms a material necessary for the nutrition of the central nervous system, and the following experiment of Ewald's indicates that the fresh gland contains an active principle capable of profoundly influencing the brain. If the expressed and filtered juice of the recently removed gland is injected subcutaneously in a dog, the animal, in about three hours, falls into

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a curious hypnotic state, standing motionless, taking no notice of anything, and allows the limbs or head to remain in any position in which they are placed. After persisting for an hour and a half or two hours the condition passes away and the animal recovers. There is no fever. A number of control experiments were made with the juice of other parts of the body, but this remarkable phenomenon never occurred except when that of the thyroid was used.

Whether this material, whatever may be its nature, which influences so strongly the nerve centres, is elaborated in the gland or is only excreted by it from the blood cannot be definitely stated. On the latter view the changes in myxœdema and after thyroidectomy may be regarded as the result of a slow poisoning of the system by material which it is the function of the thyroid to remove or render inert.

DEATH IN LABOR FROM DYSPNŒIC URÆMIA.

THE so-called uræmic intoxication, as it occurs in a woman in pregnancy, during or after labor, may have different manifestations. CHARLES, in the *Journal d'Accouchements* of April 15th, narrates the case of a primigravida at the eighth month of twin pregnancy, who died from asphyxia. She had been anasarcous from about the middle of gestation, the anasarca being most marked in the lower limbs and the external genital organs, but there was no albumen in the urine. She was suddenly attacked with difficult respiration and great præcordial distress; meantime labor came on, though the pains were not severe, and the os dilated slowly. She gradually became cyanosed, but her intelligence was not impaired, and there were no convulsions; in a few hours she died undelivered.

Whether the explanation of death given in this case is correct or not, the history illustrates the dangerous consequences of what Stoltz and his pupils have described as the serous cachexia or hydremia of pregnancy, a condition which, though entirely neglected by some authors of works upon obstetrics, we believe demands a prompt recognition and as faithful treatment as does albuminuria in the pregnant woman.

THE ninth annual meeting of the American Climatological Society will be held at Baltimore, on Tuesday and Wednesday, May 31st and June 1st, and we understand that interesting papers have been promised by Drs. Loomis, Trudeau, Westbrook, Shattuck, Donaldson, Musser, Curtin, and Reed, all on phthisis in one or other of its phases. Drs. Rice and Peale will make reports on mineral springs, and Dr. Linn on some health resorts.

THE State Medical Society of Wisconsin will hold its forty-first annual session at Oshkosh, commencing on Tuesday, May 3d, at 8 P.M., under the presidency of Dr. S. C. Johnson, of Hudson.

AMERICAN NEUROLOGICAL ASSOCIATION. — The American Neurological Association holds its thirteenth annual meeting at Long Branch, N. J., on July 20th, 21st, and 22d.

THE annual commencement of the University of Pennsylvania was held last Monday, and the degree of M.D. conferred on ninety-nine graduates. THE MEDICAL NEWS prize of $100 for the best graduation thesis was by the award of the Medical Faculty divided between Arthur C. Hugenschmidt, of Paris, France, and Peter J. J. Martin, of Pennsylvania.

At the annual meeting of the Alumni, held in the afternoon, Dr. Alfred Stillé was re-elected President.

REVIEWS.

A MANUAL OF OBSTETRICS. By A. F. A. KING, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D. C., etc. Third edition. 12mo. pp. 379. Philadelphia: Lea Brothers & Co., 1886.

Since this little book first appeared, it has been gradually growing in size, and increasing in the number of its illustrations; presenting now forty more pages and forty-three more woodcuts than in the second edition of 1884. The volume is more attractive in appearance, and embraces a larger range of subjects, which are, of course, treated in very few words. Its popularity is evinced by the fact that a third edition has so soon been called for. Manuals should never take the place of more comprehensive treatises, but may serve a good purpose as ready remembrancers to busy country practitioners, and are often much better for their use than many of their antiquated works, which are apt to be behind the age.

The author has fallen into some of the errors of Playfair, viz., "hydatiform pregnancy," instead of hydatidiform, or like a hydatid. "Spondylolithetic pelvis," for spondylolisthetic, or a slipping of the vertebra. Both of these were corrected in the last American edition, and the Greek derivation of the latter given in a footnote. By a recent English review, we notice that Dr. Playfair has renewed the latter error in his last edition, and been taken to task for it.

Under the "Cæsarean section," nothing is said of the new method of Sänger, in its present simplified form, for closing the uterine wound; or of the largely diminished fatality under it. No spray is used in this operation, and no drainage tube is required, as there should be no leakage. The average time required is one and a quarter hours, and from twenty to thirty-seven sutures have been used by different operators. Dr. Lusk, in his recent successful case, inserted thirty-four. We must differ with Dr. King, when he says that the relative merit and danger of the Porro operation, when compared with the Cæsarean section, is "so unsettled as not to admit of either statement or discussion in his work."

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With fifty-two operations and thirty-seven recoveries under the improved Cæsarean method, a fair comparison may be made.

What is called Simpson's method of treating placenta prævia, was used by Dr. Ruschenberger, of Philadelphia, fourteen years before the Edinburgh professor recommended it; the lady saved being the wife of a Peruvian army officer. We are glad to see the advanced views of the author in reference to the employment of laparotomy after uterine rupture; in our judgment the abdomen should be opened and cleansed, and the uterine rent sutured in all cases of laceration where the state of the woman will admit of it, even if she has been delivered *per vias naturales:* and we believe that the present advances in abdominal surgery will bear us out in this opinion. To deliver the fœtus is to leave the work only half done, if we expect to save the woman.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, April 27, 1887.

H. AUGUSTUS WILSON, M.D., IN THE CHAIR.

DR. CHARLES H. BURNETT read a paper on

EAR-TRUMPETS.

There are three reasons, he said, why the deaf should use ear-trumpets:

1. In order to aid the hearing. 2. To improve the hearing. 3. For the convenience and comfort of those conversing with the very deaf.

1. When a person becomes very deaf in both ears, some resort to an artificial aid of hearing must be made. So long as one ear remains fairly good, patients will not use an ear-trumpet for the deaf ear. But when ordinary tones near the ears are heard either very imperfectly, or not at all, the sufferer gladly resorts to some form of ear-trumpet. Most of these are unpleasant and imperfect aids, from their disagreeable resonance, and poor conducting powers. They also bruise the meatus, in most cases being made with an ear-piece which fits into the mouth of the auditory canal. These discomforts and imperfections, in the average ear-trumpet of all forms heretofore invented, added to the natural indisposition to employ an ear-trumpet because of its conspicuousness, have in most cases led to an early abandonment, or a partial use at least, of such an instrument.

The cause of ordinary deafness is, in most cases, a catarrhal thickening of the mucous membrane over the ossicles and the inner surface of the membrana tympani, leading to more or less ankylosis in these parts. Passive motion overcomes in them, to a greater or less extent, the immobility induced by this sclerotic process, as it does elsewhere in the osseous and muscular system. The form of passive motion which acts most naturally on the ossicula auditus and their joints, is sound. If, therefore, sound-waves are concentrated in more than usual quantity or vigor upon the stiffened membrana and the ossicles, as by means of an ear-trumpet, hearing is induced, if the auditory nerve is unimpaired. If the latter is impaired, no form of ear-trumpet will be of use.

2. Not only does such a form of passive motion give immediate relief to the deafness in most cases, but such a form of passive motion, acting frequently and systematically upon the ear, prevents further ankylosis in the conductors, and fatty degeneration of the auditory nerve from desuetude, This, of course, tends to a permanent improvement of the hearing, and, in some instances, patients come to hear at last without a trumpet. If such a force were brought to bear early in cases of deafness from ankylosis in the ossicula, the defects in hearing could, in most cases, be arrested, and, to some extent, removed. This form of aid to hearing has its happiest results in very deaf children, in whom the loss of hearing often entails loss of speech, if they have already learned it. If they have not learned to talk, and their deafness depends on catarrhal disease in the middle ear, and not on a lesion of the acoustic nerve, the use of a good ear-trumpet will rescue them from entire deaf-dumbness.

3. The convenience and comfort of those who communicate with the deaf by means of a trumpet are not the prime, though important considerations. For, if this mode of conversation is rendered difficult by reason of the imperfect ear-trumpet at command, it will not be readily or willingly employed, and, in the case of children, therefore, not enough will be said to them to improve their hearing or to teach them speech.

The most useful ear-trumpets yet presented to his notice are those of Mr. Maloney, who exhibits them here to-night. They are not only useful as conductors of sound, succeeding where other forms fail, but they do not fit into the meatus. They are held to the ear, the aural end of the instrument being supplied with a disk, and not a tip for the meatus. This does away with bruising the canal, or exciting furuncles in it, so common in the employment of the forms heretofore in use. They have been devised in a scientific manner, and introduced to the profession on their own merit. The best results, or the most signal ones, have been obtained by the so-called silent instrument. This is simply because it is the most powerful, and hence renders most aid to the very deaf, the only people who are really willing to use any instrument. The smaller instruments are just as good for those not very deaf, and, if used by such patients, would aid in the retention of hearing, and tend to cure their hardness of hearing, as he has shown. But the less afflicted class seem unwilling to use any form of ear-trumpet. All ear-trumpets of any value must possess some size in order to contain a column of air sufficient to impress the drum. They must be larger than the auricle with which the patient is already supplied. Hence, all invisible appliances, so-called, are self-evidently good for nothing.

MR. J. A. MALONEY, of Washington, said that he commenced his labors in "Aural Mechanics," with a mode of procedure as follows:

1st. To develop instruments as far as he could to meet the various phases of defective audition.

2d. To construct the instruments to give satisfactory results without entering the auditory canal.

3d. To use artificial drums or membranes to guard against impact of air upon the "membrana tympani," and prevent reverberation, so common in all the old forms of instruments. He decided that a scientific instrument should possess these three essential qualities: it should be large enough to be of practical value; it

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should augment sounds: but with such augmentation the "timbre" or quality of sound should be preserved.

We are all aware that the membrana tympani, unlike other stretched membranes, responds to all vibratory motions within a certain limit, whether they are in the form of noise or of composite tones, transmitting through the intermediate agencies of the middle and inner ear, to the nerve of hearing auditory sensations. Could a stretched membrane be arranged, so closely imitating in function the one given to man, as to show how beautiful are the harmonies of nature?

After experimenting twelve months, he adopted the form of membrane which he presented. The reason for its adoption came about in this way: In the early stage of his experiments he invariably found a lack of clearness of tone, until one day the thought occurred to him that he could secure uniformity of tension by clamping the membrane between two rings. When this was done, he found it a great improvement over all other methods, and consequently adopted it after thorough tests. Even after obtaining good results, he could not but feel that there must be some other result produced by the rings than that of maintaining a uniform tension of the membrane. He found that while the membrane was upon the stretcher-frame, with the rings glued upon each side of it, like any other membrane, it would be thrown into sympathetic vibrations by tones corresponding to its fundamental; *but that when cut from the frame*, and dependent for its tension upon the two rings alone, it would not respond to a tone corresponding to its fundamental. Now it has been thought that the last named feature exhibited by the membrana tympani was produced by its union with the auditory ossicles. But may it not be due to two facts? 1st. That the margin is thickened. 2d. That the middle layer, or "substantia propria," is fixed to a ring of bone.

His membrane describes a central vertical line between the two rings acting as clamps, and the rings themselves represent the ring of bone to which the middle layer, or "substantia propria," of the membrana tympani is attached. In the construction of the instrument, the fact must be borne in mind that it must be arranged to suit and compensate for the defect of hearing. 1st. Arrange for high tones, if the defect is in that direction; or for low tones, if the defect is in that direction. 2d. The augmentation and clearness must be to the extent that the person will hear every word spoken, instead of a word here and there, as heretofore, which involves a severe mental strain to construct the incomplete sentences.

DR. S. S. COHEN said he had the pleasure of seeing, some time ago, a demonstration of these instruments in the case of some patients of Dr. J. Solis Cohen, and they acted very satisfactorily. A letter was received some time ago from Dr. Lacharrière, of Paris, the eminent physician in charge of the National Institution for Deaf-Mutes, inquiring as to the truth of reports that in certain institutions in this country, especially in New York, ear-trumpets were being used in the instruction of so-called deaf-mutes and that it had been found that a gratifying proportion of children thought to be totally deaf, reacquired in this way a certain degree of hearing power. After some correspondence he learned that Mr. Currier, Professor of Articulation in the Deaf-Mute Institution at Washington Heights, New York, had used an instrument different in construction from that of Mr. Maloney, with good results. He published accounts of them in the *Annals of the Deaf and Dumb* for January and for October, 1885. He reports a number of cases that have acquired the power to carry on conversation. Mr. Currier uses what is termed the "conical conversation tube," attaching two mouthpieces and tubes to a single earpiece, in order that the patient may hear his own voice as well as that of the instructor. His system of instruction to reawaken so-called "latent hearing" is ingenious, and, from his reported cases, apparently quite successful. If Mr. Maloney's earpiece was attached to Mr. Currier's double tube, it might be found still better.

DR. C. WIRGMANN asked if there were any liability for the rubber disk to get out of order?

MR. MALONEY said, with reference to the durability of the rubber, that it has a protective coating. During the past nine months he has exposed them to varying changes of temperature without any apparent effect. If the membrane should get out of order it can easily be replaced. He had never had his attention called to the instrument of Mr. Currier until the matter was mentioned by Dr. Cohen this evening. He finds that his instrument is open at both ends. In speaking of what he terms No. 3, or "silent," instrument he neglected to state that it is closed at the end nearest the ear. The object of this is to prevent the impact of the air on the drum of the ear. Such impact has a tendency to destroy the clearness of the tone. With his instrument the only impact on the "membrana tympani" is that of the column of air in the auditory canal between the membrane of the instrument and the drum of the ear, thereby developing *true auditory sensations*, which cannot be produced by instruments open at both ends.

While he has done something in the way of testing those supposed to be entirely deaf, he was not prepared, without his notes, to speak on this subject, because he has not yet finished the line of tests marked out. He could say, however, that he has made tests in two cases supposed to be totally deaf and dumb. One was a man, forty-two years of age, and deaf from childhood. He made him hear on both sides, *noise only*, for the percipient functions had never (as in such cases) been trained or educated. The other was a boy, eleven years of age, supposed to hear very slightly on one side only. Upon making tests he found he could hear on both sides, *noise only*, for the same reason as mentioned in the foregoing case. When he completes the line of tests marked out he shall be glad to present the results to the Society.

DR. C. H. BURNETT said that the question of so-called latent hearing in deaf-mutes is, of course, very important. In one sense, there is no such thing as latent hearing. Without doubt, many deaf children lose the power of talking if they have previously acquired it, or fail to learn to speak on account of their inability to hear. In the case of a graduate of two deaf-mute colleges, the man's wife discovered that he could hear to a certain extent, and by systematically talking to him, he acquired the power of hearing an ordinary tone of voice while in an adjoining room. This case was reported to him by Mr. A. Graham Bell, of Washington. In most cases, deafness is due to ankylosis, and the use of an ear-trumpet is simply another application of the movement cure.

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He has himself seen a child a little over two years of age, just learning to talk, lose its hearing to a marked degree. By persistent teaching on the part of the mother the hearing was much improved, and the child was rescued from a condition of deaf-dumbness. The child is now twelve or thirteen years old, and while the hearing is not perfect, she is far from being a deaf-mute. Many deaf-mutes can hear something. It is very onerous for even a parent to exercise the hearing by the unaided voice, but with an instrument, like those of Mr. Maloney's, the parent may be induced to undertake the task.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, April 18, 1887.

THE PRESIDENT, JOHN SHRADY, M.D., IN THE CHAIR.

CARCINOMA OF THE PANCREAS.

DR. THOMAS C. TAYLOR reported a case of carcinoma of the pancreas, with infiltration of the omentum and walls of the stomach, along the greater curvature, occurring in a female thirty years of age. The case, he said, he presented for the reason of the infrequency of the affection, and the obscurity as regards its diagnosis. Perhaps, however, such cases were not as infrequent as was generally supposed, since many patients died with symptoms similar to those met with in the present instance, which were attributed to some other disease; whereas, had autopsies been made, the primary cause of death might have been found in the pancreas.

In the case in question, he said, there were absent three important and common symptoms, generally regarded as diagnostic of cancer of the pancreas, viz., jaundice, œdema, and fat in the alvine discharges. According to Dr. Norman Moore, in the *St. Bartholomew's Hospital Reports*, jaundice was always found where the pancreas was the primary seat of a new growth. In ten cases coming under his observation, in which post-mortem examinations were made, jaundice was found in all. Sir Charles Murchison also referred to persistent jaundice as a common symptom of the disease; but Dr. Louis Starr had shown that it was of clinical importance to note that the ductus choledochus does not always pass through the head of the pancreas, but sometimes merely passes over it. When this was the case any enlargement of the pancreas would simply push it aside without giving rise to any jaundice. According to Nyss, this happened fifteen in twenty-two times.

Œdema occurred, according to the majority of authorities, in more than half the cases of cancer of the pancreas recorded; while fat in the alvine discharges was said to be found in nearly all the cases. The same condition, however, might occur, according to Reynolds, when the duodenum, and not the pancreas, was diseased. Dr. Taylor said that he had been unable to find any authority who gave even one pathognomonic sign, and, therefore, he thought that Da Costa's manner of diagnosticating these cases was the most feasible, that by exclusion. As to the invasion of the stomach in the present instance, according to Pepper, this disease rarely extended to the stomach, but rather affected the neighboring lymphatic glands, the duodenum, and the liver. In regard to the possibility of prolonging, by operative procedure, the life of a patient suffering from cancer of the pancreas, provided the diagnosis could be made out sufficiently early, he thought that the two cases reported by Billroth were of much interest, where he had made a partial resection of the organ, removing the tail in one and a portion of the head in the other, but, of course, not injuring the duct. Both patients recovered from the immediate effects of the operation, but how long they lived or whether the disease returned, he did not state. Dr. Taylor thought that when he first saw his case, but a very small portion of the head was involved, and that if the diagnosis could then have been established, it would have been an excellent opportunity to perform an operation similar to that of Billroth.

DR. WM. T. LUSK read from notes the report of a

SUCCESSFUL CASE OF CÆSAREAN SECTION.

Bridget C., aged twenty-four, Irish, domestic. She was sent, March 21, 1887, to Bellevue Hospital, on account of deformity of the pelvis resulting from hip disease. The latter dated from the time when she was eleven years old, and on account of it she was sent to the hospital at Dublin, at that time, for treatment. She was discharged cured; but during her pregnancy she noticed some suppurative discharge from the old sinuses which had formed at that period.

On March 22d, on examination, much to his surprise, he discovered that she was already in the early stage of labor. The pelvis was of the Naegele oblique type, and its measurements were as follows:

Distance between the anterior spines, 21½ centimetres. Distance between the cristæ ilei, 24 cent. External conjugate, 16 cent. Distance between anterior and posterior spines, right side, 14½ cent. Distance between anterior and posterior spines, left side, 16 cent. Diagonal conjugate, 9 cent. Internal conjugate (estimated), 7.5 cent. Distance between ischia, 6.5 cent.

The shortening of the right leg (measured from the trochanter to the malleolus) amounted to 4 centimetres. On the right side the iliac bone ran in a nearly straight line, and on the left the curve was greatly diminished.

With the sanction of Drs. Isaac E. Taylor and H. J. Garrigues, who saw the case in consultation, he determined to perform Sänger's operation. Craniotomy is generally considered comparatively simple; but with the dimensions that were found in this case he had no doubt that the dangers from it would be greater than that of Cæsarean section, provided the latter was performed sufficiently early. Dr. Taylor was of the opinion that the case was nearly identical with one in which Dr. Lee performed craniotomy and where the patient died. Dr. Lusk also referred to a similar case in the practice of Dr. Studley, where the pelvis was fractured in the effort to deliver the child.

As the patient was already in labor, he determined to operate at once. Both the private pavilions of the hospital were occupied, and he was accordingly obliged to perform the operation in one of the wards. The examination was made about noon, and at 3.30 P.M. the operation was commenced. The abdominal incision was made through the linea alba, and extended from three inches above the umbilicus to a point two or three fingers' breadth above the symphysis pubis. The peritoneum having been slit up, the left cornu of the uterus came up into the wound, and the organ was everted by press-

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ure with the hands over the abdominal walls. When the uterus had thus been turned out, the intestines were placed beneath the abdominal walls and retained by a flat sponge, and the uterus was wrapped in warm towels; a solution of bichloride of mercury, 1 : 10,000, being used. A rubber tube was then placed around the lower segment of the uterus in order to prevent hemorrhage. In opening the uterus an incision two inches long was made near the lower segment, and with the scissors the opening was afterward increased to five inches. Owing to the pressure upon the vessels secured by the elastic ligature, the incision was nearly bloodless. It was followed by a hernial protrusion of the membranes through the opening.

The child was found with the head presenting in the left occipito-anterior position, and on being extracted was in a cyanosed condition. Through the well-directed efforts of Dr. A. B. Ball, however, it was resuscitated. With the finger the membranes and placenta were readily separated; the delicate cobweb-like processes connecting the decidua with the residual portion of the mucous membrane remaining adherent to the uterus, described by Leopold, were at this time beautifully exhibited. The uterus remained of a pale, waxy color, on account of the constriction of the elastic ligature.

In closing the uterine wound thirty-four carbolized silk sutures were employed, of which sixteen were deep and the rest superficial. In the deep sutures, he said, special pains should always be taken to avoid the mucous membrane of the uterus. The Lembert suture was used in making the superficial sutures. When the rubber tube was removed from the uterus the blood slowly returned to the pallid organ. At first it assumed a delicate rosy hue, and finally a deep purple color. A very slight oozing was observed at one point. The uterus was then returned to the abdominal cavity, and a drainage tube inserted behind the organ. It was impossible, however, to pass the tube into Douglas's cul-de-sac, owing to the pelvic contraction. Silver wire sutures were employed to close the abdominal wound. At the end of the operation the patient was in excellent condition. The operation lasted altogether one hour and fifteen minutes, and twenty minutes of this time were taken up in the effort to stop the oozing referred to.

For two days after the operation the temperature did not go as high as 100°. Then there was a little tympanites, and it went up to 101½°; but a Seidlitz powder had the effect of promptly reducing it again. The highest temperature was reached on the fifth day (102¾°), but fell, however, to 100½° after a spontaneous evacuation of the bowels. On the sixth day the drainage tube was removed. Immediately after the operation the discharge from it was stained with blood, but it soon became colorless. Dr. Lusk said that the tube was not probably needed in this case; but at the same time there was a certain feeling of security in knowing that it was in position. On the day following the removal of the drainage tube there was some oozing from the opening left by it. At the end of a week the abdominal sutures were removed. At this time the temperature would usually go up to about 100½° in the evening, and then fall again by morning.

On the ninth day some fluctuation was detected in the line of the abdominal wound, and a little pus was evacuated; after which the temperature became nearly normal. At the end of two weeks, however, the temperature went up to 101.6°. Still, no trouble whatever could be discovered about the abdomen, and as the patient complained of pain in the right hip, an examination was made which showed an accumulation of pus in the site of the old sinuses which had given the trouble during the patient's pregnancy. Accordingly a knife was inserted, and about a pint of pus evacuated. Since that time the woman had been in most excellent condition. Ever since the second day, by which time she had recovered from the effects of the ether given for the operation, she had been able to take abundant nourishment. She passed her water freely, was comfortable in every way, and on the whole seemed to think it rather an easy way of having a baby. The baby now weighed nine pounds, and was also doing finely.

DR. SILVA, lately house-surgeon in Bellevue Hospital, who had had charge of the case, stated that the patient did better than any other case of laparotomy that he had the opportunity of observing during his service at the hospital.

DR. THOMAS KEARNEY inquired whether it would not have been better in such a case as this to perform Porro's or Tait's operation, in order to prevent the woman's becoming pregnant again.

DR. LUSK replied that Harris's statistics showed that with the Sänger operation (modified more or less from the original procedure proposed by Sänger) there were over 70 per cent. of recoveries, while in Porro's operation the recoveries were only 40 per cent. It was, therefore, unquestionably a more dangerous operation. In regard to Tait's operation, it seemed to him that the additional risk to which the removal of the ovaries subjected the patient rendered it inadvisable, the extremely vascular condition of the parts constituting a serious objection. At all events he should not like to attempt this, in addition to the Cæsarean section, unless he had time to consider the matter very carefully beforehand, and in the present instance the operation was undertaken in a very hurried manner, as he had no idea that he would find labor actively commencing at the time he made his first examination of the patient.

DR. J. R. MACGREGOR said that he had been with Dr. Studley at the time that the fracture of the pelvis referred to by Dr. Lusk, occurred. The patient had ankylosis of the right hip, with a projection inward of the ramus of the pubes on that side; but it was thought that she could be delivered *per vias naturales*, with the aid of artificial assistance, until the accident occurred. The patient died, though not immediately.

DR. SILVA said that in *The American Journal of the Medical Sciences* for 1879, N.S., lxxvii. 43–65, Dr. Robert P. Harris, of Philadelphia, had published statistics of one hundred cases of Cæsarean section, and out of nineteen of the cases, occurring in dwarfs, only one mother and five children were saved. In all of these cases the operation was only undertaken as a last resort, when the patient was utterly exhausted, and the results certainly afforded ample proof of the importance and desirability of early surgical interference.

DR. C. S. WOOD said that in the course of his experience he had performed three craniotomies, and this class of cases was without doubt as disagreeable and

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repulsive as one could possibly meet with. If, therefore, by this operation it was possible to save more mothers than by craniotomy, it would be a great boon. Thus far, however, the statistics unfortunately showed that it saved a far smaller proportion of mothers. In two of the cases of craniotomy that he had met with the mothers recovered, while in the third the mother was lost. Yet in one of the successful cases he labored under great disadvantages, as, not expecting to be called on to perform craniotomy, he had no instruments for the operation, and was so situated that none could be obtained at such short notice. Under these circumstances he resorted to the device of manufacturing such rough instruments as he was able from some shoemaker's tools, and he thought the case was interesting as showing what might be accomplished by very simple means sometimes in an emergency.

There seems, he said, at present to be gaining ground a sentimental notion that it is of the greatest importance to save the child, but he was one of those who believed that the mother should always be saved at all hazards, whether the child was sacrificed or not; and as long as it could be shown that more mothers' lives were lost by the Cæsarean section than by craniotomy, he thought the latter should be preferred.

DR. KEARNEY said that he could not agree with the views expressed by the last speaker. Dr. Bedford, he thought, had given the most rational statistics, and if, as was undoubtedly the case, it could be shown that in the aggregate more lives (of mothers and children taken together) could be saved by Cæsarean section, it should without doubt have the preference over craniotomy. The matter was not merely one of sentiment, it was more than that, and involved a question of deep ethics. By simple logic alone the justice of the Cæsarean operation could be established, and he had never yet seen the objections against craniotomy adequately answered by any author with which he was conversant.

DR. LUSK said that if in speaking of Cæsarean section reference was made to the old operation, as it had usually been performed, unskilfully or carelessly, and when the patient was already in a dying condition, the mortality was without doubt very heavy. It was a fact that in most of the cases it was resorted to only when the woman was moribund, when all other methods of delivery, craniotomy included, had been exhausted. When it was remembered also that a rude and careless way of operating had also been the rule, it was no wonder that the patients died, and that statistics based on such cases bore heavily against the value of the procedure. But even under all these disadvantageous circumstances, a few cases had recovered.

At the present time it is getting to be understood that the operation should be performed, whenever this is possible, under more favorable conditions and in the same careful way as other surgical procedures involving the abdominal cavity. The operator should take sufficient time to make out the pelvic diameters and consider fully the risks that would be encountered in performing craniotomy. If, having done this, he decides that the Cæsarean section offers the best chance of success, he should make his preparations as deliberately as the circumstances of the case will allow, and perform the operation by methods in accordance in every particular with the precepts of modern antiseptic surgery. When this course was pursued, the results were infinitely more satisfactory than those met with in the old operation, as was shown very clearly by the cases of Leopold, for instance, who, if he remembered rightly, had operated ten times with only one death. Even the case that he had lost Leopold thought that he would now have been able to save, in the light of his later experience. Very few obstetric surgeons, Dr. Lusk thought, could show a result of 90 per cent. of recoveries in their cases of craniotomy. Within the last eighteen months Harris had collected 52 cases of Cæsarean section, with 71 per cent. of recoveries; while the best results of craniotomy in these difficult cases showed only 60 per cent. of recoveries. Still, he was quite aware that too implicit reliance was not to be placed in statistics.

Other operators besides Leopold had reported a number of successive cases without a death. One great reason for the gratifying success of the modern operation, Dr. Lusk believed to be the use of the rubber ligature, which so effectually prevents hemorrhage from the severed uterine structures. When this is employed the surgeon can go to work very deliberately, and bring the edges of the wound together with the greatest acccuracy. In his own case there was absolutely no symptom during the lying-in period which was referable to the uterine wound. In conclusion, he would only say that if we were to wait until the woman was dying, instead of interfering early, as in this instance, we should only have the old statistics repeated.

In reply to an inquiry as to what he thought of the operation of laparo-elytrotomy in these cases, he said that this procedure is particularly adapted to a special class of cases, viz., when the head is arrested at the brim of the pelvis and the cervix is already dilated, or in a dilatable condition. If, however, after laparo-elytrotomy we were obliged to extract the child through an undilated cervix, it became a very serious operation. In case, therefore, we desired to operate early, we had to do it at a time when the conditions favorable for laparo-elytrotomy did not exist. Of the twelve cases of this operation which had been reported, six had resulted in recovery and six had proved fatal; the latter being cases in which success was impossible from the conditions existing at the time.

AMPUTATION OF THE PENIS FOR EPITHELIOMA OF THE GLANS AND PREPUCE.

DR. J. R. MAC GREGOR presented a portion of a penis which he had amputated about six weeks before for epithelioma of the glans and prepuce. This variety of cancer, he said, is very interesting, not only as regards the result to the patient, but also from its special pathological features. In this case there was a great deal of thickening, and there was marked increase of the connective tissue of the part. At the time of the operation much care had been taken to prevent any subsequent constriction of the urethra at the end of the stump, and thus far the result had been altogether satisfactory. The chances were also fair, he thought, that there would not be a reproduction of the growth.

DR. GOULEY said that it was an interesting fact that in epitheliomatous growths of the glans or prepuce there was always antecedent balanitis or balano-prostatitis,

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and the greater proportion of cases occurred in individuals who were the subjects of chronic balanitis. This condition was, for the most part, due to the lack of cleanliness on the part of the patient, allowing of the accumulation of smegma behind the glans, and at first there was simply an alteration in the normal epithelium. Later this went on to be developed into this peculiar form of carcinoma, and the proliferation was rapid enough not only to involve the mucous membrane, but to extend to the cavernous bodies of the penis.

So far as his experience goes to show, the amputation operation usually resorted to in this class of cases is insufficient, and is apt to be followed by a recurrence of the disease more or less rapid; this new development always occurring at the end of the stump. It also is sometimes met with in the lymphatic glands. Atresia of the extremity of the urethra is apt to be a very unpleasant consequence of the amputation of the penis, and Dr. Gouley related a case which first came under his notice when he was a hospital interne, in which, although there was no return of the epithelioma whatever, the patient died of pyelo-nephritis resulting from this atresia following the ordinary amputation operation; the fatal issue occurring within two years after amputation. About 1860, having occasion to amputate a penis for epithelioma, he first used the écraseur to break up the cavernous bodies. Then, leaving the urethra fully three-quarters of an inch longer than the stump, he fastened the urethra to the free extremities of the cavernous bodies. By this and other devices, therefore, it is not difficult to avoid the atresia referred to.

In consequence of the frequency with which the epitheliomatous growth recurred, however, he finally made up his mind that in the next case that he had he would excise the whole penis, and, accordingly, in April, 1878, resorted to this procedure in a patient fifty years of age. He dissected out the entire penis, without opening the cavernous bodies; removing the crura and all. In this instance about one-half of the cavernous bodies had been involved in the disease. The patient was discharged cured on the 11th of June following; but he was unable to say what was the subsequent history of the case. Having exhibited this penis preserved in alcohol, Dr. Gouley went on to say that it seemed to him that a radical operation of this kind gave the patient the best chance of avoiding a recurrence of the disease; for if the slightest cancerous deposit were allowed to remain, the growth was sure to go on developing again. He believed, therefore, that in the majority of cases it is not only justifiable, but the most proper measure to adopt. It seems like a formidable operation, but in reality it is not, and in the case in which he performed it the patient made a rapid recovery after it.

DR. JOSEPH D. BRYANT said that he had had some experience with amputation of the penis, and he recalled three cases of it in particular very distinctly. In two of them the operation was performed for cancerous disease involving the glans and anterior portion of the penis, and in the third for general carcinoma, involving not only the penis, but the whole system. The latter, as a case of remarkable interest, he related in detail. At the autopsy it was found that there was scarcely an organ in the body which had not been invaded by the cancerous disease. The kidneys were probably the starting-point of its development, and even the spinal cord was among the structures involved. One of the other cases referred to was a young man of twenty-five, who attributed the origin of his trouble to a woman with whom he had had intercourse, whom he believed to be affected with the same disease.

In these cases he had performed the amputation just in front of the scrotum; cutting the spongy body three-quarters of an inch longer than the corpora cavernosa, and attaching the integument to its extremity. He said that he was fully of the belief that the entire removal of the organ was the only ultimately safe procedure. He could understand, however, that if the growth was very slight, it might be allowable to consult the patient's wishes on the subject, and if he objected, make the amputation pre-scrotal.

CORRESPONDENCE.

IS THE TREATMENT OF CONSUMPTION BY MEANS OF SULPHURETTED HYDROGEN AND CARBONIC ACID GAS A NEW IDEA?

To the Editor of THE MEDICAL NEWS,

SIR: Prior to the beginning of the nineteenth century a Dr. Saiffert, of Paris, introduced a treatment in that city, or at least used it, which attracted a great deal of attention, and for the time being gave him considerable notoriety. It consisted in placing the consumptive patient in a cow-stable in close proximity to several cows, and in such a position as to expose him thoroughly to the vapors arising from the manure. In fact, the bed was so arranged that the liquid manure might stagnate underneath it. In this way he cured cases of consumption that had progressed to the last stages. He was much criticised by the profession and scoffed at by the people, but nevertheless continued his plan of treatment with some success.

In 1799 Dr. Thomas Beddoes, an English physician of some fame and a somewhat noted author in his day, introduced the plan of treatment into England and Ireland. He recorded some successes, and in 1803 published a book in which he gave details and set forth his idea of the *modus operandi.*

On page 40, in a foot-note, he says: "Alkaline vapors, sulphuretted hydrogen gas, and carbonic acid gas were very conspicuous in their effects. The nature and proportion of these gases require further examination."

On page 51 he says: "The principle on which I conceive the cow-house vapors to have acted is well understood in the treatment of ulcers; certain applications disposing them to heal. And what way is there, upon which we can depend, of making applications to pulmonary ulcers, but that which gases and vapors offer us?"

The plan of treatment apparently became somewhat popular in France, England, and Ireland, and even crossed over to America. Even at this day an idea exists among the people that sleeping in a cow-house will cure consumption. A few years ago, when I was myself suffering from a lung trouble, I was several times advised by laity to avail myself of this plan of treatment.

LAWRENCE F. FLICK, M.D.

519 PINE STREET, PHILADELPHIA.

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NEWS ITEMS.

A PHYSICIAN AS SPEAKER OF THE ONTARIO LEGISLATURE.—We are pleased to learn that Dr. Baxter has been elected to the office of Speaker of the Ontario Legislature. This mark of distinction will be gratifying to the profession at large, for while it has always a good representation in Parliament, the places of honor have mostly fallen to the law.—*Canada Lancet*, April, 1887.

CHANGES IN THE FACULTY OF VIENNA AND THE RULES FOR THE ADMISSION OF FOREIGN STUDENTS.—Professor Max Gruber, of Graz, has been appointed Extraordinary Professor of Hygiene. It has been decided that the vacation courses are only to be open to foreign medical men in cases where the full number of the classes is not made up by Austrians. This may prove rather a serious matter for some of the English and Americans who frequent the Vienna Hospital for the short courses, for which it is famous.

THE SUCCESSOR OF PROFESSOR SCHRÖDER.—Privy Councillor Olshausen, of Halle, has accepted the invitation to fill the late Professor Schröder's chair of Midwifery, and will commence his lectures on May 1st.

ANTITHERMIN is the latest introduced antipyretic agent. It is allied in its chemistry to antipyrin; phenylhydrazinlevulinic acid is the chemical name.

THE VIRGINIA STATE BOARD OF MEDICAL EXAMINERS.—The *Virginia Medical Monthly* for April, 1887, states that the object of this Virginia Board is to test candidates for practice in Virginia only upon their merits as brought out by examinations. No college professor is on the Board. The Board stands as a higher court than the college faculties; it has to pass upon the work done by the colleges. Fortunately for Virginia, the Board is composed of men well qualified for the discharge of this duty. The standard of graduation claimed by most of the reputable colleges of the country is seventy-five per cent. The Virginia Board of Medical Examiners adopts the same standard, and tests applicants solely by this standard. The Board is composed of men who possess sympathies, and who are as liberal in their markings as they should be. Without partiality to any, they are generous to all—always giving candidates the benefit of doubtfully correct replies, and even stretching their ratings as far as any proper idea of justice will allow. Not the slightest individual preference or partiality can be shown, because the examiners do not know who the candidates are. Each candidate as he enters upon the examination is given a number, but his name is known only to the Secretary of the Board. The candidate returns his examination papers only by the number assigned him, and the respective examining committees examine the papers of No. so and so, and not of Dr. so and so. Catch questions are avoided, or, if asked, are not rated; and not one who has yet presented himself for examination, so far as we have ever heard, has suggested the charge of unfairness. Some who failed in their examinations have said that some of the questions are too hard. But we publish the questions regularly, year by year, and we have not yet heard of a college professor or a practitioner of education who has said otherwise than that the candidates should be expected to answer them. And yet, in view of all this, we have just had 12 candidates rejected out of a class of 19 applicants, each one of whom is fresh from college with his diploma, and some, we learn, are *honor graduates*.

FORMIDABLE EXAMINATIONS.—The preliminary examination customary in this country, is quite a different affair in Lyons, France. The medical faculty of that city, feeling that it did not receive its due in the shape of students, began to inquire into the reason therefor. It arrived at the conclusion that it was the severity of the preliminary examination which deterred students from entering there, and, to judge from a few figures, we do not wonder at their reluctance. In 1882, 33 candidates were rejected out of 41; in 1883, 15 out of 20; in 1884, the same; in 1885, 11 out of 15; in 1886 all the candidates who presented themselves were "plucked." The faculty now proposes to petition the government to abolish the examination altogether.

THE DISPOSAL OF GARBAGE.—The best methods for the disposal of garbage must necessarily differ according to circumstances. For some communities its utilization in the feeding of swine is a practical solution of the problem; while for others no better way seems to have been devised than to deposit it at sea, so far from land as to preclude the possibility of its return by wind or tide. Still another plan is that of its destruction by fire or cremation—a plan which theoretically is perhaps the most satisfactory from a sanitary standpoint, but one in regard to which practically there seem to be so many difficulties as thus far to have prevented its adoption in the largest cities of the United States. This problem is now being discussed at Milwaukee, Wis. One proposition is to take the garbage to the country and then to feed it to animals, another is to deposit in the waters of the lake, and a third to consume it by fire. A company proposes to erect two cremators, at an expense of $10,000, for this purpose, claiming that the running expenses will not exceed $15.50 per diem.—*Science*, April 1, 1887.

DECREASING BIRTH-RATE OF IRELAND.—*The Sanitary News* of March 26, 1887, writes as follows on this subject:

The marriage-rate in Ireland is the lowest of any country in the world which keeps a record of its vital statistics, and it is constantly growing lower and lower because of the emigration of men and women in the prime of life. In that unhappy country, the excess of births over deaths is but 6.4 compared with 13.9 in Scotland, and 14.3 in England and Wales. The Irish are not the people under ordinary circumstances to have small families, hence this decrease in the birth-rate is all the more alarming. The death-rate in the United Kingdom is rapidly decreasing. Fewer children die and adults reach a greater average age. The marriage-rate declines, however, having fallen off 1½ per cent. in the period 1880–1887 as compared with the period 1875–1880. The decline in marriage-rate is not due to "hard times," for, while the population of the United Kingdom increases but 12 per cent. per decade, its wealth increases 22 per cent., its trade 29 per cent., and its shir

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ping 67 per cent. The greatest danger lies in the prospect of physical degeneration because of the decreasing death-rate, which fell off 5½ per cent. in 1881–1885, as compared with the preceding five years. With an increase of intelligence and wealth, there is always a decreasing birth-rate. France has reached that point where its births only serve to keep the population undiminished, while in our own New England, it is probable that the population would actually decrease were it not for immigration.

CHOLERA PREVENTED.—*The Sanitary News* of March 26, 1887, describes the following successful attempt to eradicate a cholera epidemic:

At a colliery on the island of Takasima, Japan, cholera last year attacked 1500 out of 4000 laborers, and 800 died. As this was the third time the island had been ravaged by cholera, the company used sanitation as a preventive. The U. S. consul reports that this work was carried out as follows: A complete sewerage system was formed. Heavy pumping arrangements were erected on the beach, for pumping sea-water to the highest point of the island, whence by an arrangement of drains and sluices it was gravitated back to the sea, flushing for three or four hours daily every drain among the dwelling houses. An extensive fresh-water condensing apparatus was erected, turning out from 7000 to 8000 gallons of water per day. The wells on the island were closed, and water from the main land only allowed to be imported for purposes of washing, etc. A strict system of food quarantine was instituted, and all food was supplied through the company. Three digesters, each of 800 gallons capacity, were erected, beef killed under inspection being used to make soup, about 1000 gallons per day being supplied to the miners. Beef was also served out in the rations. All shell-fish were prohibited, only deep-water fish, after inspection, being allowed to be landed or sold. No deleterious vegetables of any kind were permitted to be brought to the island, potatoes, beans, and certain harmless native vegetables being the only ones allowed for consumption. The success of the system adopted has been amply demonstrated by the fact that Takasima has been the only place in Nagasaki Ken untouched by cholera during this year's epidemic.

THE CASE OF CATALEPSY NOW AT LONDON.—*Science* for April 22, 1887, describes the following case which is now exciting great interest in London:

The case of M. Chauffat, a native of Haute Savoie, who has been overtaken by a trance in a French hotel in London, has been exciting very great interest among the section of medical men devoted to psychological studies. This is the seventeenth day of his cataleptic condition, from which he shows no sign of awakening, and the administration of food is not a little difficult. Chauffat has been a patient of the famous Dr. Charcot, in the Saltpêtrière Hospital in Paris, where a large number of experiments are now being conducted upon hypnotizing. Dr. Charcot, however, particularly wishes it to be understood that Chauffat is not a hypnotized subject. The general state of his body is good, the temperature and pulse being normal, though the respiration is subject to great variation, changing from 15 to 28 in the course of a few hours. The only way in which he can be aroused sufficiently for the administration of food is by directing a strong ray of light on his eyes. An examination of them by the eminent oculist, Mr. Brudenell Carter, showed that all the vessels, both veins and arteries, were much contracted and very small. Both sides of the body are alike in their condition, though the cataleptic condition is stronger in the limbs than in the trunk. The most extraordinary feature of the case is the remarkable results obtained by gently stroking Chauffat's arm. The limb, if raised upright, remains in that position indefinitely; and, when certain nerves are stroked, the fingers clinch tightly, the blood is forced from the extremity, the hand and forearm turn slowly round to the right till the strain is so great that the muscles stand out rigidly, the limb being perfectly rigid. On the other hand, the most gentle touch or stroking of the flexor of the forearm is sufficient to relax the whole. Without doubt, Chauffat's case is one of the most remarkable of the kind that has occurred in England, although they are more frequently to be met with in France.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 26 TO MAY 2, 1887.

BILLINGS, JOHN S., *Major and Surgeon.*—Granted leave of absence for 10 days, to take effect May 3, 1887.—*S. O. 98, A. G. O.*, April 28, 1887.

WOODRUFF, CHARLES E., *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered for duty at Fort Wayne, Mich.—*S. O. 96, A. G. O.*, April 26, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 30, 1887.

ATLEE, L. W., *Assistant Surgeon.*—Ordered to the Receiving Ship "Vermont."

BIDDLE, CLEMENT, *Passed Assistant Surgeon.*—Detached from the Naval Academy, and to Marine Rendezvous, Phila., Pa.

ASHBRIDGE, RICHARD, *Passed Assistant Surgeon.*—Ordered to the Naval Academy.

HUDSON, A., *Medical Inspector.*—Ordered to the United States Steamship "Trenton."

HIBBETT, C. T., *Passed Assistant Surgeon.*—Ordered to the United States Steamship "Trenton."

DECKER, CORBIN, J., *Assistant Surgeon.*—Detached from the Receiving Ship "St. Louis" and to the United States Steamship "Trenton."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING APRIL 30, 1887.

GOLDSBOROUGH, C. B., *Surgeon.*—Leave of absence extended thirty days on account of sickness.—April 20, 1887.

DEVAN, S. C., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days—to take effect when relieved.—April 12, 1887.

BRATTON, W. D., *Assistant Surgeon.*—To proceed to Port Townsend, W. T., and assume temporary charge of the service.—April 21, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MAY 14, 1887. No. 20

ORIGINAL ARTICLES.

PISTOL-SHOT WOUND OF THE ABDOMEN,

INVOLVING THE LIVER, STOMACH, SUPERIOR MESENTERIC ARTERY AND VEIN, SMALL INTESTINE, AND KIDNEY: LAPAROTOMY; NEPHRECTOMY; DEATH ON THE FIFTEENTH DAY; AUTOPSY.[1]

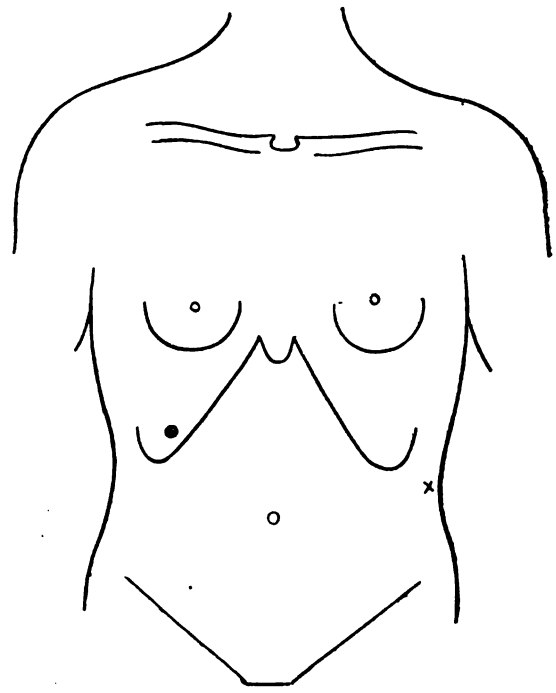
BY W. W. KEEN, M.D.,

PROFESSOR OF SURGERY IN THE WOMEN'S MEDICAL COLLEGE PENNA., SURGEON TO ST. MARY'S HOSPITAL.

MISS B., in Vineland, N. J., a plump and healthy, well-developed girl of nearly eighteen, shot herself with a pistol, calibre No. 32, at 6.30 A.M., April 1, 1887. In a few minutes she was found by the family who had been roused by the shot, lying on the floor of the room next her bedroom, bleeding slightly, and conscious, and was carried to her bed. Dr. O. H. Adams who arrived in a few minutes found that the ball had entered over the liver, and after a careful search found it lying under the skin of the left flank. She was pale and weak and suffering considerable pain. Giving her one-quarter of a grain of morphia subcutaneously and directing that no food be given her, he telegraphed for me. I reached there at 2 P.M.

She was perfectly conscious, very pallid and weak, suffering moderately. Her night dress was blackened and burned over a space four to five inches in diameter. She told me that the wound was self-inflicted, hence the pistol had been almost in contact with the body, and the ball had probably passed in a straight line. The small, blackened wound of entrance was seen over the ninth rib, which was fractured, four and a half inches above the level of the navel, and three and three-quarter inches to the right of the median line. Skin not burned. The ball was located eight inches to the left of the median line one and a half inches above the level of the navel. There was moderate tenderness over the entire belly, hepatic dulness not changed, stomach resonant from fifth interspace, no cough, no râles, vocal fremitus normal, renal dulness began at tenth rib on left side, and was the same on the two sides. There was severe pain in the left shoulder. She had vomited a drachm and a half of clear, bright blood, she told me, immediately after the accident. This had been lost, but I saw what she had twice vomited later. It was ordinary mucous and bilious vomiting, streaked with a few drops of blood. About a pint of urine, the first since the accident, was drawn by the catheter. It was not bloody. Pulse 104, respiration 30. No material rise of temperature. As after consultation with Drs. Adams and Bidwell it was deemed almost certain that the belly was invaded by the ball, exploratory laparotomy was advised, consented to and begun at 3 P.M., and terminated at 6 P.M.

FIG. 1.



● Wound of entrance.
x Point of lodgement of ball.

Operation.—The instruments were in 5 per cent. solution carbolic acid, the sponges had been lying in a similar solution for five days; hands and nails were cleaned by soap and water and corrosive sublimate 1:1000; the wall of the abdomen was thoroughly washed with the sublimate solution, especially at the wound of entrance and the navel, an easy hiding-place for dirt and mischief. Plenty of towels in a warm sublimate solution were provided. The sponges were placed in the sublimate solution during the operation. Ether given by Dr. Beck. The ball was easily removed just under the skin. Neither wound could be traced positively into the belly. An incision was then made in the median line from the epigastrium downward three inches long, subsequently prolonged to eight inches, and in such a position that it crossed a line joining the two wounds, so that, if the ball had passed in the belly wall only, its track would be found. On opening the belly neither blood nor serum escaped, nor was any extravasated food or feces noticed. There was no peritonitis. Two fingers

[1] Read at the American Surgical Association, Washington, D. C., May 12, 1887.

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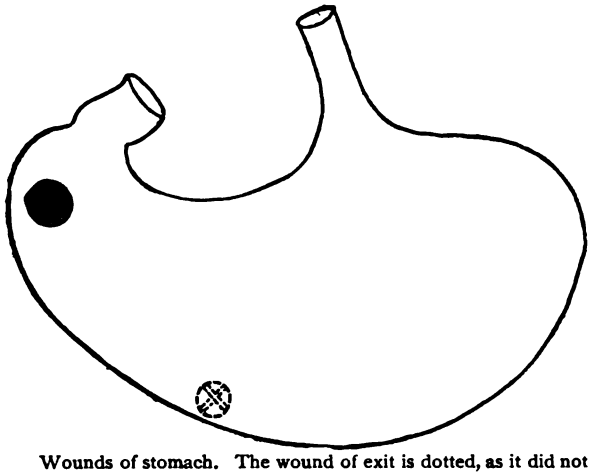
were passed in and an effort made to discover the wound of entrance or exit without any being revealed by touch. The wound was then enlarged and the stomach drawn out. A small round wound near the pylorus was found and was closed by four sutures (Lembert) of the finest iron-dyed silk a

FIG. 2.



Wounds of stomach. The wound of exit is dotted, as it did not show in this view of the stomach, being on the inferior and posterior surface.

round ordinary sewing needle being used, only the peritoneum and muscular coat being caught by the sutures. This wound was practically closed by the pouting mucous membrane. As the ball had entered the stomach, search was made for the necessary wound of exit. None was to be found, but the manipulation showed that a small amount of bloody serum existed in the belly, and a large area of extravasation was seen in the mesentery. The cause for this bleeding was then sought. The bowels were carefully drawn out and placed on the belly wall wrapped in towels kept wet with the warm sublimate solution. The blood extended fan shaped in a moderately thick layer between the two layers of the mesentery, its periphery extending almost two feet along the bowel and its point being at the mesenteric attachment to the spine just below the head of the pancreas and in the line of the wound. But little blood had escaped into the peritoneal cavity. The mesentery was carefully torn through and a small artery tied. The chief bleeding came from a hole nearly one-eighth inch in diameter in a large vein, so large and lax that at first I thought it the vena cava, but its position just below the head of the pancreas convinced me that it was the large superior mesenteric vein just before it forms the portal vein. After much difficulty I seized it with hemostatic forceps and placed a lateral ligature of chromicized catgut on it.

Meantime the manipulation had revealed a moderate bleeding point in the omentum near the wound of entrance. This was tied with catgut, and the ligatured part cut off. The anterior border of the liver had been scalloped by the ball, but as there was no bleeding it was let alone. In addition, a large wound in a coil of small intestine in the left flank had been found. This was one and a quarter inches by half an inch, the long axis in the axis of the bowel, almost at the mesenteric attachment, its edges ragged, the mucous membrane pouting into the wound, but not closing it, the peritoneal wound extending beyond that in the muscular coat. No bleeding was going on. The bowel and mesentery here were carefully examined on both sides, and upward and downward, to find any other wound, but neither did the bowel nor the mesentery show the slightest lesion. A little bilious matter escaped during the closure. This was quickly caught on a

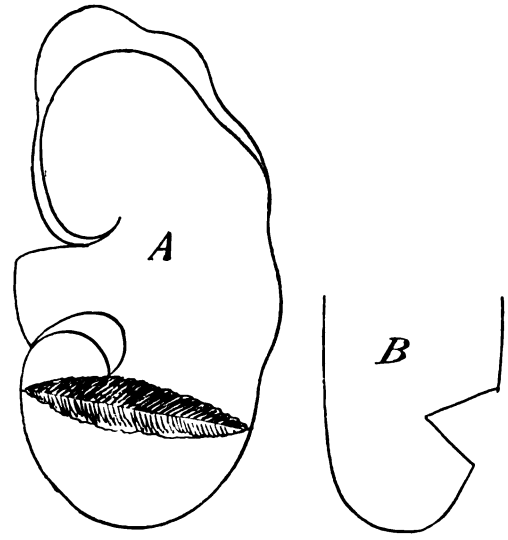
FIG. 3.

Perforating wound of the small intestine 1¼ x ½ inch laceration of peritoneum beyond the wound, pouting of the mucous membrane.

sponge and the bowel carefully cleansed. Ten Lembert sutures were used in closing it.

Returning now to the stomach, a very careful search was again made for the wound of exit. Two small patches apparently of extravasation had been seen before, in the lower border, about four inches from the pylorus, and it was now found that one of these, instead of being an extravasation, was the

FIG. 4.



A Shows the wound in the kidney.
B Shows its depth.

small, round wound of exit, obscured by a slight coating of blood. This was closed by three black silk Lembert sutures, as in the case of the other wound.

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Thus far, one lesion after another had been attended to as found, and in the order of urgency. A systematic investigation was now made of the entire bowel, from the stomach to the sigmoid flexure, and no other wound discovered. Each coil as it was drawn out was examined first on one side and then on the other. The wound of exit from the peritoneal cavity next received attention, while the bowels were lying on the belly wall. It could now be found after a moderately easy search. I passed my finger in, and discovered that the left kidney was badly lacerated, and I immediately removed it, peeling it out of its capsule, and tying the pedicle with a stout silk ligature. No difficulty attended this step. On removal, the kidney was found to be ploughed through by the ball, on its anterior surface, from the hilum to the opposite border half way through its entire thickness one-third of its length above the lower end. Very little blood, and, so far as I could determine, no urine, was found at the site of the kidney. A rubber drainage tube was inserted through the wound of exit into the abdominal cavity.

Her condition by this time was such that no time was to be lost in completing the operation. The abdomen was therefore washed out by a hot sublimate solution (110° to 115°) till the water flowed out clear; the amount of blood so washed out being but little, some of which had passed into Douglas's cul de-sac. The bowels were replaced, the omentum carefully spread out over them, and the abdomen closed. This was done by nine deep silver-wire stitches, including the peritoneum, and eight intervening ones of silk. I should have sutured the peritoneum at the site of the removed kidney, and also have sutured it in front independently of the rest of the abdominal wall, but that the condition of the patient was such as to forbid the necessary delay. As a matter of fact, no added risk was caused. The wound of entrance was then cleansed, and closed by three stitches, and the wound of exit was closed by two stitches, except where the drainage tube passed out. Am Ende's sublimate gauze, rubber dam, and a wide flannel bandage completed the dressing, and she was then placed in bed with hot bottles and blankets. Pulse 175, and very weak. Some hypodermatic injections of whiskey had been given with advantage during the operation.

During the night a little cracked ice and some ice water and half a grain of morphia were given. She had had considerable pain, but had slept about three hours. At 9.30 P.M. ℥iij clear urine had been drawn, but from then till 7 A.M. only ℥ss was secreted. The morning temperature was only 99.4°; pulse 146, and respiration 18. At the request of her mother, who had mean time arrived from New York, I asked my friend, Dr. Weir, of New York, to see her. He arrived the next day and coincided in the wisdom of the course taken, especially as to the kidney.

Drs. Adams and Bidwell took charge of the case until I able to see her again with them on April 5. From their daily reports I condense her history as follows:

During the day following the operation suppression of urine was threatened, only ℥iijss being secreted. This was quite albuminous. The next day, however, the amount rose to ℥xxiv and on the third day to ℥xl, and the albumen gradually disappeared. Her temperature fluctuated between 100° and 101°, rising once to 102.5°, when a sponge bath and for a short time an ice bag to the abdomen brought it down to 101°. For the first three days, as she was so fat and hearty, nothing was given her except a little cracked ice, ice water, and a little whiskey and champagne. On the fourth day peptonized milk in frequent but small quantities was allowed with rectal enemata of the same every four to six hours, and later of "liquid peptonoids," "beef peptonoids," and "bovinine." The rectal alimentation was prevented earlier by reason of a number of watery, but not bloody stools. She had also vomited several times, once on April 4th quite violently. The matter vomited was bilious with no blood in it. She had been in a great deal of pain which was fairly controlled by morphia. For a short time on the fourth also she was delirious. Menstruation appeared regularly when due on April 3d, and ran its usual course of four days.

At my visit on the 5th of April I found her, on the whole, doing well. Her temperature had that morning fallen to the normal, pulse 114, respiration 16, but I did not like her anxious expression and continuous pain and sleeplessness. She was thirsty, but not hungry. On changing the dressings I found the wound of entrance healed. From the wound of exit, which Dr. Adams had dressed on the the 4th, there was scarcely any discharge. It was healed except for the drainage tube. The abdominal wound was firmly healed at the upper and lower ends. The third, fourth, and fifth deep wire stitches had broken, presumably when the violent vomiting took place the day before or possibly earlier. The intervening silk stitches prevented much gaping. Where the gaping took place the omentum was somewhat exposed, but as it and the belly walls were well glued together, I did not disturb them save to introduce one stitch of support at the widest gap, but I did not approximate the edges, as there was a drop or two of discharge from small aseptic stitch abscesses, and I feared lest I might force it into the abdominal cavity.

At my next visit, April 7th, I found the wounds doing well, no further gaping. Six stitches at the two ends were removed, as also the drainage tube, from which there had been no discharge. The pain in the left shoulder and at the epigastrium continued to a moderate extent. There was no peritonitis or tympany. But her temperature had risen to 101.3° and the pulse to 124.

On the 8th, at noon, she had a chill lasting twelve minutes. The temperature rose to 104°, the pulse to 148, and the respiration to 32; the temperature, however, falling to 99° by 6 P.M. Her stomach and bowels had also became irritable, and much of her nourishment was lost. I did not receive the telegram calling me there till after the last train had left, so that I did not see her till the 9th. She had had another chill that morning, and her condition was most critical; temperature 104°, pulse 160, and very weak, respiration 36 and shallow. I suspected, of course, pus at some point and debated reopening the

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belly, but as the most careful examination revealed no spot of special tenderness, no dulness, no fluctuation, and she was almost, it seemed, *in articulo mortis*, I did not deem it prudent to do so, lest she should die at once.

The next day, the 10th, she improved somewhat, her temperature falling to from 99° to 101.5°. She had a natural movement from the bowels with neither blood nor pus. She still vomited considerably.

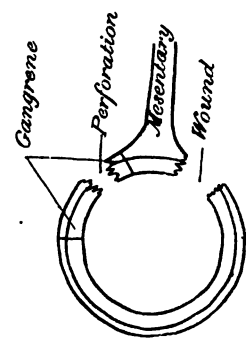
April 11. Dr. Weir saw her with me. Her temp. was 100.6°; pulse 120; resp. 24. The most careful examination showed nothing locally that would guide us in reopening the belly, either in front or flank, especially in her then bettering condition. There was no pain except on very deep pressure, which produced diffused pain; nothing in Douglas's cul-de-sac; uterus movable, not tender; no peritonitis anywhere; only the stitch wounds were tender with slight suppuration about them, and on the surface of the exposed omentum. We thought it not impossible that the chills, etc., arose from those stitch wounds, and almost hoped she would still pull through. The wound was washed and redressed as before, rubber adhesive plaster supporting the belly wall outside the dressing.

13th. I saw her again. She had had another chill, with a temperature of 105.4°, and had vomited several times, and also had some involuntary evacuations. But as her condition was fair, pulse 136, temp. 101.4°, I decided to reopen the belly and explore it. No dulness, hardness, tenderness, or œdema existed to determine any opinion as to suppuration, but I feared a possible mesenteric abscess. No ether was given, and very little pain was felt. The adhesions between the omentum and the belly-wall were broken up with very moderate force, and two fingers passed into the belly. The intestines were bright and glistening, and no peritonitis existed anywhere. Surgical bimanual examination revealed no pus or special tenderness at the site of the removed kidney, or so far as it could be located at the intestinal wound. The stomach and liver were in good condition. The fingers detected a general hard mass at the site of the wounded superior mesenteric artery and vein, but there was no fluctuation, and when withdrawn the fingers showed no pus; nor did a sponge passed into the same point show any. The wound was then reclosed by sutures, care being taken to replace the omentum and belly-walls in as nearly their former position as possible, and a glass drain inserted as a precaution. No shock followed. Her temperature fell temporarily during the evening, though it rose again during the night, and she slept nearly three hours.

During the next day (April 14) she had two bloody movements; she began to have involuntary discharges of urine as well as feces, and though her temperature never rose beyond 102.2°, she gradually failed, and died April 15th, at 1.30 P. M.

The autopsy was made by the Coroner's direction, by Dr. H. C. Smith, of Millville, twenty-one hours after death. Through his courtesy, as well as from Drs. Adams and Bidwell (for I was unable to be present), I obtained the following facts, as well as the stomach, bowel, and right kidney. There was general peritonitis, except in the pelvis, but no free pus was found anywhere. The wound in the liver was healed. Only one wound was found in the stomach near the pylorus, and this was healed, the four stitches being seen in place. The site of the other could not be found, nor could its three stitches be found anywhere. Search was made in the duodenum also, but no wound could be discovered. The duodenum, head of the pancreas, and mesentery were softened and matted together by inflammatory exudate, and the head of the pancreas was cheesy. The blood in the mesentery was disintegrating and suppurating, though no abscess existed nor was there any free pus in the peritoneal cavity. The suppuration was chiefly marked along

FIG. 5.



Section of wound in small intestine at *a* in Fig. 3, showing the site of the gangrenous spot and perforations found at the post-mortem. The wound is represented open, as at the operation.

the mesenteric attachment of the intestine. The wound in the small intestine was found entirely healed, the stitches being in place and covered with a thin layer of lymph. On the other side of the mesentery, corresponding in position to the lower end of this wound, was a spot in the bowel-wall as large as a five cent coin, which was gangrenous, and in its centre was a double perforation of bowel with pus in the calibre of the bowel. I have not received the mesentery, but I am told that it also showed local gangrene at this place. Very careful and systematic search of the entire length of the bowel revealed no wound except that discovered at the operation. No trouble was found at the site of the removed kidney. The right kidney was removed and found healthy and enlarged. Both kidneys having been in the same bottle in alcohol, the right for two weeks the left for four, their measurements are: right, 4¼ by 2⅜ inches; left, 3½ by 1⅝ inches; the right kidney is also thicker. The spleen was normal; right ovary cystic. Only the abdomen was examined.

REMARKS.—The question of doing a laparotomy was not wholly easy to decide. Besides social circumstances, which made me hesitate to assume any except urgent responsibility, neither wound could be positively traced into the belly cavity, though the nearness of the pistol made it almost certain that the ball had pursued a straight line, and if so, had penetrated the abdomen. It is worthy of note, in this connection, that when the fingers were in the abdom-

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inal cavity the wound of entrance could not be felt, and later, when, by lifting the belly wall, the perforation in the peritoneum could be *seen*, when the finger was placed there it still could not be *felt*. The amount of clear blood vomited at the time of the accident was very small, and we had only the statement of the wounded girl to depend upon. Even this, as well as the streaking of blood in the later vomited matters, could come from contusion or her fall. There was no evidence of blood either by the bowel or the bladder. Her long continued and deep pallor, weak and rapid pulse pointed toward hemorrhage, but palpation and percussion did not give positive evidence of any. But, as everything seemed to point toward the *probability* of the belly's being penetrated, I determined upon an exploratory laparotomy, in order to determine the facts absolutely. In this decision my colleagues coincided. Fortunately, the presumed course of the ball crossed the proper line of incision, and I was able to decide that it had not traversed the wall of the belly by not finding its path while I was making my first incision, and before opening the peritoneum.

No food having been taken before the early hour in the morning at which the shooting occurred, fortunately prevented any extravasation of food, and none of the wounds being in the lower bowel, no feces escaped. Although it was nearly ten hours from the accident to the time when the intestine and stomach were sutured, it is worthy of notice that no intestinal or gastric juice or fluid contents escaped, even though the intestinal wound was so large and gaping, and vomiting occurred three times prior to the laparotomy. The pouting mucous membrane well occluded the gastric wounds.

The second opening in the stomach was difficult to find, and was at first mistaken for a simple extravasation, a fact already noted by Dr. Briddon[1] as occurring in a case of his own. There was, however, no doubt as to its existence, and I put three sutures in its edges. At the post mortem no evidence of its position could be found, though careful search was made both in the stomach and the duodenum, the possibility that I might have measured the wrong way being borne in mind. There is neither scar nor sutures to be found on the outer or inner surface of the stomach. The sutures in the other stomach wound are in place, and look as though they would remain for some time. Whether, in the other wound, the sutures disappeared internally after the healing of the small wound, or loosened and were lost in the belly cavity cannot be determined.

The peritonitis, found at the autopsy, did not exist on the twelfth day, when the belly was re-explored. Nowhere was the glistening peritoneum then dulled. Two sources existed for the later peritonitis—the opening in the intestinal wall opposite the intestinal wound and the mesenteric pus. The former was the most likely source. At the operation the bowel and mesentery were carefully inspected on both sides, but no such opening existed. Had it been made by the ball, peritonitis would undoubtedly have occurred quickly after the operation, and there would not have been *two* openings here, as the specimen shows. I have no doubt that the fact was that the ball contused a part of the mesentery, especially probably an arterial branch. This did not show at the time, but later on produced a limited gangrene, and perforation took place a day or two before death. Dr. Smith, also, tells me that the mesentery itself was necrosed at this place. The bloody stools preceding death point in the same direction, especially as she had had a natural movement of the bowels, with neither blood nor pus, on the ninth day after the wounding. Hereafter, however, in all cases of intestinal gunshot wound, whether single or double, I shall examine the mesentery more minutely for any possible evidence of contusion as well as perforation.

Possibly this necrotic process in the bowel, as well as the general softening of the duodenum, was promoted by the serious wound of the superior mesenteric vessels, especially the vein. The artery was a small branch, but the vein was the main trunk just below the head of the pancreas, and so large that when I first seized the bleeding point and lifted the wall I thought it the vena cava. I placed a lateral ligature upon it, seizing the margin of the small opening, as large as the lead of a pencil, and securing it by a catgut ligature. To dissect it loose and encircle it with the ligature would have required a considerable loss of time which I wished to avoid, and besides, I feared the effect on the bowel of obstructing so large a vein. Whether a thrombus formed in the vessel, and occluded it, was not examined. The blood, curiously enough, did not find vent into the peritoneal cavity by the wounds in the mesentery, save to a very slight extent, but dissected the two layers of the mesentery, and was spread out, fan-like, from its source to two feet of bowel, in a moderately thick layer, thickest at the spine. This it was impossible to remove, and I had to trust to its absorption. I was not surprised that there was trouble at the site of the wound in view of the injury done by the ball, and the necessary manipulation to get at and secure the vessels. It is worthy of note, however, that the chief trouble existed at the periphery of the clot near the bowel, where we would expect absorption most readily to take place. Probably the main absorbent trunks from this part, as they approached the spine, may have been obstructed by pressure, or have been injured by the ball or during the operation.

The kidney, I believe, has never before been removed at a laparotomy for gunshot wound, but it was clearly the right thing to do. Bloody urine is one of the most frequent signs in injuries of the kidney, and its absence here was remarkable. The wound extended entirely across the kidney, and half way through its thickness, yet the urine (℥xvj) drawn eight hours after the accident (and none had been passed), was absolutely free from blood, the injury apparently arresting the function of this kidney, while the laceration of the renal substance was such that but slight bleeding occurred. Possibly the urine drawn had been mostly secreted during the night. The day following the operation the remaining kidney worked badly, only three and a half

[1] THE MEDICAL NEWS, January 8, 1887.

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ounces of albuminous urine being secreted. But the next two days dispelled all anxiety on this score, the urine rising to twenty-four and forty ounces respetively, and the albumen soon disappeared. The early and marked compensatory enlargement of the right kidney is also of great interest and importance, though, of course, now well known to follow nephrectomy.

When the chills occurred, due, no doubt, to the necrosis and suppuration of the large mesenteric blood clot, naturally the first impulse would be to open the belly, anteriorly or in the flank, and search for the pus. But I was deterred from this course by her general condition, which then threatened almost immediate dissolution, and by the fact that no peritonitis existed at the spots most likely to be the seats of suppuration. The most careful external examination revealed its absence. To this, possibly, the wounded vessels and effused blood should be an exception. Even here, however, there was no dulness, fluctuation, or hardness, and the slight tenderness that existed was to be expected. When I did reopen the belly and examine this spot I only found a general matting of the tissues, and no accumulation of pus in an abscess. What pus did exist at the post-mortem was not free in the belly, nor accumulated in an abscess, but diffused between the mesenteric layers.

I did not suture the peritoneum at the site of the removed kidney, as the patient's condition did not allow of the delay, and no harm came of it. In view of the possibility of the giving way of stitches in the abdominal wound, which occurred here, and also in a case of Dr. Bull's (and exposed the intestines), I should hereafter take time to close the peritoneum by a continuous catgut suture before suturing the abdominal wall, even if the patient's condition were bad. The avoidance of possible subsequent dangers would justify taking a certain amount of present risk.

The reason for the severe and quite persistent pain in the left shoulder, I could not determine.

THE POLAR METHOD OF ELECTROTHERAPY IN GYNECOLOGY.[1]

APPLICATION, DOSAGE, AND MEDICATION.

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IN this paper I shall treat of those points which are of more general interest and of practical importance in gynecological practice.

I. *Essentials for the successful use of electricity.*

II. *Manner of application, electrode, and instruments to be used.*

III. *Measurement and dosage.*

IV. *The method of applying medicinal agents, or electro-medication.*

The use of electricity is rapidly gaining in favor among gynecologists, and this is due to the *galvanometer*, mainly, hardly less to the introduction of the *polar method—i. e.*, the direct application to the tissues, and to the use of *strong, effective currents*—making it possible to apply the current without those long sittings of twenty and thirty minutes, which made it an impossibility for the busy practitioner heretofore. These are the essential features of the gynecological electrotherapy of to-day, in which the *electricity* which I advocate differs from the medical electricity which has so long remained in a very dubious light before the profession.

This questionable medium has at once become a valuable agent; a very perceptible change is taking place in the profession; the very men who, not a year ago, denied the possibility of measurement and dosage, now appear as converts: the admirers of mild currents and half-hour sittings continued for months, are hushed by the undeniable logic of facts, by the astonishing results achieved by effective currents in a few short sittings; in short, medical electricity is now emerging from the primitive condition in which it has too long remained.

Whilst commerce and industry have developed the most wonderful properties in this agent, and have utilized it to a marvellous degree, the medical profession has almost ignored it, though known for an entire century, since the time when Galvani, at sunset, on a September evening, one hundred years ago, while endeavoring to suspend the legs of a skinned frog, by a copper hook through the spinal column, to the iron railing of his garden terrace, observed the twitching of the muscles when the copper hook touched the iron railing. This event marks the first progressive step in the history of electricity since the discovery of the remarkable property of amber, 600 years B.C.

Fertile brains soon developed the discovery of the Bolognese savant, which found favor especially among the French.

The most important advance in the use of galvanism as a medicinal agent is, however, due to the labors of Remak, of Berlin, forty years ago, which we must accept as the basis of our work; upon this we build.

Physiologists have developed the science, and neurologists have applied it, but the profession at large has gained but little; indeed, we may say that the teachings of Remak have not been utilized as they should have been. Gynecologists were not successful, because they merely followed the specialists, the neurologists, who had adapted the new remedy to their own particular purposes, in a very different sphere; isolated, and even wonderful successes were reported, and created a temporary interest, which soon subsided. Even the success of Cutter, of New York, in the destruction of fibroid tumors, seventeen years ago, remarkable as it was, did not arouse emulation. The excellent results of Bruns, of Tübingen, in the treatment of goitre, and of nasal polypi, were noted by only a few and forgotten by them; the brilliant application of the electrolytic properties of galvanism for the destruction of supernumerary hair in the eyelid, made by our friend Dr. Michel, of St. Louis, would have met with a similar fate had it not been made so valuable to dermatologists by our col-

[1] Read before the St. Louis Medico-Chirurgical Society.

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league Dr. Hardaway, so that among a limited number of specialists this one property of galvanism was thoroughly appreciated; but to the profession at large the electric current still remained the same mysterious agent, regarded with indifference, with distrust, or with awe, until Apostoli, in 1883, gave us the key to the successful application of electricity for the destruction of fibroid tumors by urging, 1. Localization, the limitation of effect to one active pole, which must be placed within the tissues; and, 2. The use of currents stronger than any hitherto applied in medical practice. Upon these fundamental laws I have based the theory and practice of gynecological electrotherapy.

Little can be said of electricity in gynecology; it has had no influence whatsoever upon the development of this rapidly progressing specialty; reference to even the latest and most thorough text-books affords the best proof of this fact.

The gynecologist, unacquainted with the varying properties of the electric current, resorted to this remedy only when all other means had failed; in the most difficult and unyielding cases he tried an agent with which he was not familiar; he naturally failed, and as naturally ascribed his failure to the remedy he used.

Need we wonder that no attempt was made to apply electricity in gynecological practice, when Sir James Y. Simpson stated that "Electrization of the uterus was all but useless, and that when uterine action had been apparently excited by galvanism it was *a mere coincidence*, or resulted from an impression made on the mind of the patient, or on the abdominal parietes by the electrode." Very little more advanced in his practice is Powell, a writer on medical electricity twenty years ago, who ridicules Simpson for this statement in his *Practice of Medical Electricity*, published in Dublin in 1869; though he tells us that the utmost care should be taken in recording cases, etc., he himself gives the following case histories: "Galvanism and faradism were applied for three weeks, and with marked benefit;" or, "he was put under a course of galvanism, and in five weeks the power of the arm began to return."

This was a time when, in the famous Guy's Hospital, patients were treated by shocks from Leyden jars passed through the pelvic regions from the sacrum to the pubis, giving the very acme of what we most cautiously avoid in its mildest form—*i. e.*, shock.

But we can go down to the very latest literature without an improvement in that vagueness which has killed electricity as a medicinal agent. What is the practice of those who in their writings urge precision in application and measurement? What is the practice of those who preach exactness, and tell us that the want of progress is due to want of precision? By their own case records we see that they themselves commit precisely the same error.

We are in a stage of transformation, light is beginning to dawn, the importance of precision in application, dose, and record, is beginning to be appreciated, but not as yet fully understood or practised; so we see one writer telling us that Apostoli applied *one and a half and two and a half ampères;* another says that whilst he formerly used only twenty-five milliampères, he now has applied as high as *ten ampères*[1] (*ten thousand milliampères!*); another is recording the strength of faradic currents in milliampères.

The state of gynecological electrotherapy is not yet clear; hence, I believe that a practical exposé is in place, and conditions are now favorable to progress since gynecologists are beginning to develop the science. Hitherto nothing has been achieved for the reason that the gynecologist has followed the neurologist, and has endeavored to follow the practice of the latter in his specialty; this led to injurious or to negative results, and the agent was condemned either as dangerous or as useless. As electricity for illuminating purposes differs from electricity as a motor, so does the electrotherapy of the neurologist differ from that of the gynecologist, and I look upon the clear understanding of this distinction as absolutely essential to the development of electrotherapy; the want of it has been one of the most effective bars in the way of progress. Success was impossible with the indiscriminate application of electricity in the various branches of medicine; in gynecology we deal with resistances of 200 and 300 ohms, as low as 40, but never above 600 or 800, whilst we use currents up to 250 milliampères, most commonly between 20 and 80 milliampères; the neurologist, on the contrary, rarely goes as high as 20 milliampères, and usually uses from 2 to 5 milliampères, and the resistance of the tissues between his electrodes is from 5000 to 10,000 ohms and over.

An essential to successful gynecological electrotherapy is a smooth current, the most complete avoidance of shock, which is, on the contrary, a valuable feature in the practice of the neurologist; we carefully avoid the effect of opening, closing, and reversing of the current, which is a highly important diagnostic and therapeutic resource in neurology.

Successful electrotherapy was impossible as long as electricity was looked upon as an agent applicable here and there in the same way, and it has been my aim to establish and develop gynecological electrotherapy: as in all matters, if we wish to succeed we must ourselves work to our own especial purposes, I have, therefore, confined my work and my writing to the subject of *gynecological electrotherapy* and I wish it to be clearly understood that I make no reference to other applications.

The conditions are peculiarly favorable for the application of electricity to the female pelvic viscera:

1. The current can be confined to the part under

[1] *Ten ampères* is the current used for the large electric lights on our streets; inside lights in hotels and stores need a current of only six ampères.

Ten ampères, through a resistance of sixty ohms, which is as low a resistance as we may expect in a fibroid, means a force of *six horse* power, this in electro-chemical force or heat would destroy the abdomen in a few moments. Any unlucky fireman who for a moment touches non-insulated parts of a wire carrying a ten ampère current is struck dead, and yet one enthusiastic electrotherapeutist claims to have applied a current of ten ampères to a living woman! Electric measurement is beginning to be appreciated, but is by no means understood.

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treatment, as all the organs are gathered within the limits of the pelvis.

2. Diseased organs or morbid products can be reached directly by the electrode.

3. The low electrical sensibility of the parts makes the use of very strong currents possible. The skin, an electrically sensitive part, is not necessarily involved, and if so, only at the site of the indifferent or dispersing pole; as this is the abdomen, the current can be dispersed to any desired extent. The active electrode need never be in contact with the skin, and, however strong the current, the active intra-pelvic pole need cause no pain.

4. The polar method can, by reason of the situation of the parts, be successfully applied and fully utilized, and by this method only are speedy results possible in gynecological practice.

I. Essentials for the Successful Use of Electricity in Gynecological Practice.

As I have discussed the subject at length in my first paper, on "The Use of Electricity in Gynecology," read before the American Gynecological Association, in September, 1886, I will here only recall the important points; these are:

a. Localization of the current. The current must be localized and its effect confined as far as possible to the diseased organ or part.

b. Use of one active pole. One pole exclusively, chosen for its peculiar properties, must serve as the active agent for the application of the current, and upon this its entire effect is concentrated; this is termed the active pole.

c. Dispersing of the current. The current at the other pole must be neutralized as much as possible, and its effect rendered as little as possible perceptible; to accomplish this it is dispersed upon as large a surface as the configuration of the part will permit; hence, a dispersing electrode is used in connection with the indifferent or neutral pole, called the dispersing plate.

d. The active pole should be directly in contact with the organ or part to be acted upon, or even within its tissue.

e. The indifferent or *dispersing pole should be opposite to the active pole so as to confine the tissue to be affected between their surfaces;* it must be as near as possible to the diseased part and upon the largest and least sensitive surface which can be utilized.

f. Use of effective currents. Currents of sufficient strength to accomplish the object desired in the shortest possible time, without detriment to the patient, should be used.

The intensity of the current used in gynecological practice varies from 1 to 300 milliampères; of most general use are currents of from 20 to 80 milliampères.

It must be remembered that I am not merely urging the use of currents as strong as possible, but of *currents strong enough to be effective.* Whilst a current of one or two milliampères will relieve the pain of a contusion, a current of ten milliampères will aggravate it. The intensity must be commensurate with the object in view.

g. Precision in dose and measure. Knowledge of the force used and exactness in dosing it are a *sine qua non* to the effective application of electricity. It is as necessary to know the electro-motor force of the elements and the milliampère intensity of the current used as it is to know the strength of a chemical solution, and the number of grains of the drug which are to be given.

h. Use of proper instruments is as necessary to the electrotherapeutist as it is to the surgeon. The battery, by which the force is generated, is useless without proper means of dosing and of applying it, the milliampèremeter; suitable electrodes for the application of the current at the active pole, and for its dispersion at the indifferent pole, are fundamental requirements for a successful electrotherapy.

Upon the acquisition of these aids the recent progress of gynecological electrotherapy is based.

i. Recognition and proper use of the various qualities of the electric current. The electric current, both galvanic and faradic, is a most subtile agent, which may be made to serve many purposes, and which possesses numerous, greatly varying, and even antagonistic properties, which can be developed at will by the accessory apparatus and the method of application.

The following are the most important factors by which the properties of the electrical current are changed, and upon which its varying medicinal effect depends.

Galvanic.	*varies with*	Faradic.
Intensity; number of elements.		Intensity; distance between primary and secondary coil; influenced less by electro-motor force of generating element.
Pole; negative, alkaline, fluidifying, stimulating; positive, acid, coagulating, sedative.		Pole; slight difference; negative, more irritating, painful; positive, less painful, more serviceable for deep application.
Time of use.		Time of use.
Constancy.		Number and length of interruptions; method of increase and decrease.
Size, shape, and material of electrode.		Size, shape, and material of electrode.
Metallic for chemical effect.		Metallic for irritation.
Moist, non metallic, for distribution and penetration.		Moist, non-metallic, for penetration.
		Length and thickness of wire in secondary coil.
		High tension, effect on nerves by long secondary coil of fine wire.
		Quality and low tension, effect by short coil of heavy wire.
		Primary current more penetrating with metallic electrode.
		Secondary current more penetrating with moist, non-metallic electrode.

The therapeutic effects developed by the various properties of the current, so changed, are numerous, and electricity may be applied to serve as a

Sedative.
Stimulant.
Counter-irritant and vesicant.
Muscle contractor.
Antispasmodic.
Tonic.

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Promoter of development.
Absorbent.
Chemical cautery.
Coagulator.
Electrolytic.
Hemostatic.
Promoter of hemorrhage.
Decongestor.
And as a medicator.

II. Manner of Application, Electrodes, and Instruments to be Used.

The greatest concern is generally felt in regard to the point of least possible importance—that is, the battery itself; the question, *What is the best battery?* is so often asked that I will again repeat that *this is immaterial as regards the effect.* The current is the same, whether we use the sulphate of copper telegraph cell, the zinc and carbon telephone cell, the Leclanché cell, or any of its modifications, or the ordinary medical dip battery. The physician must adapt his battery to his convenience and to his pocket. For stationary and cabinet batteries I deem the sealed Gonda Leclanché or the Diamond the most convenient; both with muriate of ammonia, zinc, and carbon; the former with the oxide of manganese disk in place of the porous cup, which is liable to clog. This battery works steadily, and requires the addition of distilled water every six months, cleansing and refilling every year. The fluid is simple, non-corroding, and odorless. Portable batteries are now made with similar hermetically sealed cups of smaller size, and these, of course, are far more convenient than the dip batteries, which have so long ruled; of these, the Stöhrer battery was the type. It seems, indeed, strange that in this progressive inventive country, from which all electric progress comes, these filthy, corrodable batteries should so long have remained the universal favorite. The hermetically sealed open circuit battery, with dry cups, or, at least, with harmless, odorless fluid, is the battery of the future for cabinet and portable purposes.

The important instrument is the milliampèremeter, graded for general purposes from 1 to 100, for special work from 1 to 250 or 300. No work can be done without this, and it must always be in the circuit to be really useful.

The current selector I need not mention, as no battery is without one, and it is all-important that we have this means of gradual increase of the current, element by element, which I deem of more general utility, more simple, and almost as gentle as the water rheostat.

The wire rheostat to measure resistance, the interruptor, the metronome to break the current, the rheotome to change the current, the water rheostat to interpose resistance, or increase or decrease the current without even the slight jar occasioned by the insertion of single elements, are not necessary for ordinary work; but these, like the coulombmeter to measure the quantity of electricity, the voltmeter to measure the electromotive force of the elements, and the ampèremeter to measure their ampère capacity, are all demanded for progressive scientific investigation.

The *electrode*, the most simple of all the accessories, and on account of its very simplicity the most neglected, is as important as the battery itself. I blame that despicable sponge electrode in part for the neglect into which electrotherapeutics have fallen in this country; every battery was supplied with two of these abominations, and as the practitioner soon found that he could not accomplish much with them, he thought electricity useless and put aside his battery.

The sponge electrode is a filthy, current-absorbing instrument, which must be cast aside. If a small electrode is wanted, the metal plate can be used, covered with absorbent cotton soaked in warm water; this offers no appreciable resistance and is renewed without any trouble for each patient; in fact, time and trouble are saved, as it takes more time to soak thoroughly the sponge electrode than it does to cover the disk with absorbent cotton and apply this instrument, which is saturated by momentary immersion.

I propose to speak more fully of the *dispersing electrode*, as it is this which is so important, partially so from the fact that on account of its very simplicity it has been neglected. Electrodes for various purposes, for use in connection with what I call the active pole, have been devised in numerous forms to suit the locality in which they were to be used, throat, ear, uterus, or bladder, but where any but the mildest currents are to be applied these are ineffective unless the current at the indifferent pole is sufficiently dispersed; only by rendering the neutral pole painless, by dispersing the current at this pole sufficiently to render it indifferent, can the other active pole be effectively used.

For this purpose then we must have an electrode of large surface and of good conducting material, so that the resistance it offers is reduced to a minimum. The stronger the current, the more intense the effect derived from the active pole, the larger must be the surface for its dispersion at the indifferent pole, and the larger must be this surface that the peculiar effects of this pole may be neutralized and that cauterization may be avoided.

The effect of the active pole is in no way reduced thereby, as the density of the current is not appreciably diminished in applications by the polar method, whether the dispersing electrode is large or small.

The larger this is, the better; its size is limited by the surface to which it is applied, and for gynecological purposes three sizes are desirable.

No. 1. 6¼ by 9¼ inches = 58⅛ sq. inches surface.
No. 2. 4½ by 6¼ " = 28½ " "
No. 3. 3½ by 4½ " = 15⅔ " "

No. 3 is used with mild currents, and preferable when possible, as it is easily placed without disturbing the clothing, even under the corset; this should, as a rule, not be used with currents of over 15 or 20 milliampères.

Attached to a long, insulated handle, it makes a good spinal electrode, better for this purpose is one

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3 inches by 5 inches, with the same surface (15 square inches).

No. 2 is still readily manipulated, though not so easily shifted from side to side and must be used with currents from 20 to 60 milliampères.

No. 1 is necessary for intensities above 60 milliampères, if the current is to be applied without giving pain; to place this the clothing must be loosened.

These three sizes will generally suffice, although I have used No. 0, 8 inches by 10 inches with a surface of 80 square inches, for the application of very high intensities in electrolysis, and No. 5 for cutaneous faradization, round, 2 inches in diameter, like the old sponge electrode.

I would urge these dimensions for general adoption, in order that that uniformity which is so desirable to an understanding may be attained.

The electrode consists of a pliable sheet of lead perforated with holes one line in diameter, one inch apart, and is covered with a layer of punk or absorbent cotton, which is held in place by a thin buckskin or kid. These electrodes conduct as well, and are in every way as serviceable as the clay electrodes of Apostoli. The cover is immaterial, if a good conductor and absorbent, but it is important that the *plate* be of *very pliable* metal, so as to adapt itself to the undulations of the surface upon which it may be placed.

The electrode must be soaked in hot water, the superabundance of which is expressed before it is placed. The water is to be as hot as it is comfortably borne by the patient; cold water must be avoided, as it lessens the conducting power of the electrode, offers greater resistance than hot water because it does not saturate the epidermis so rapidly, and because it is not only uncomfortable, but might even endanger a patient suffering from a chronic inflammatory trouble, for which we so often make these applications. Salt must be avoided; it is not necessary, as it was for the poorly conducting sponge electrode, the instrument which I suggest being a much better conductor, and salt is injurious to instrument and patient. When used upon electrodes by which currents of high intensity are applied, the electrolytic action of the galvanic current decomposes the salt, and chlorine is developed at the positive pole, by which the amount of pain may be increased and the electrode is corroded. Upon a mucous surface the effect of the chlorine generated at the positive pole from a salt water electrode is very perceptible.

The shape of the electrodes used with the *active pole* varies greatly with the object for which it is applied, and any number have been devised; important for the gynecologist and serviceable in the majority of cases are the following four:

1. A fine, pliable uterine probe, insulated up to within three inches of its end by a glass tube which can be removed (glass or hard rubber being preferable as they can be washed in acids and rendered thoroughly aseptic).

2. A heavy, but pliable uterine sound, equally insulated.

3. A needle or stylet for puncture, to be used within the tissues, with movable insulator.

4. A metal ball or oval-shaped electrode with six-inch insulated stem, for vaginal applications.

These electrodes must be so arranged that firm connection, best by a screw, can be made with the rheophore; and one of the intrauterine electrodes must be of non-corrodable metal, best of platinum, for use in connection with the positive pole; as oxygen and acids are set free at this pole, an electrode of corrodable metal is soon affected and is not only rendered useless, but is imbedded in the tissues and hard to withdraw.

It will be found convenient to have a stylet and sound in one and the same instrument, of platinum, one end straight and pointed, the other curved and blunt, which can be inserted with either end in the handle, to be used as a sound or stylet.

(*To be continued.*)

THREE CASES OF LIGATURE OF THE EXTERNAL CAROTID ARTERY, IN TWO OF WHICH BOTH VESSELS WERE TIED SIMULTANEOUSLY.

WITH REMARKS ON THE HISTORY OF THE OPERATION.[1]

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I THINK it to be both proper and essential to recall, in connection with these cases, something of the early history of the operation, even at the risk of adding burdensome details to a subject that has so recently been considered by the members of this Society.

The first case, of which a definite record can be found, was operated on by M. Gensaul, at the Hôtel Dieu, September 20, 1824, while he was engaged in the removal of the parotid gland for malignant disease. There is no reason to believe that he, at that time, considered the ligature of this vessel as one of the steps to extirpation of the parotid gland. It appears, rather, that the vessel was tied during the course of the operation, without this step having been considered as a special preparatory measure. I think it safe to assume, in view of the relation of the parotid gland to this vessel, that the surgeon who extirpated the gland first was the one who first tied the external carotid artery. To Beclard belongs the credit of having furnished the first reliable account of the removal of this gland, which he himself removed in 1823. M. Gensaul repeated the operation in 1826. In both of these cases a cure was effected.

The surgeon who first tied the external carotid as a preparatory measure, of which a definite record can be found, was George Bushe, of the Royal College of Surgeons of Ireland. It was performed in a little patient of about ten and a half years of age, to check a severe hemorrhage following the removal of a pulsating nævus from the temporal region. The removal was not attempted, however, until all other recognized expedients had failed. The little patient made a rapid and satisfactory recovery, which pleased the operator so much that he expressed himself as follows:

"I shall trust in the future to ligature of the external carotid in such cases, and here I may say, that where

[1] Read before the New York Surgical Society, April 27, 1887.

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the disease is not in the orbit, I cannot see the necessity of securing the common carotid for anastomosing aneurism of the face and head."

In connection with the remarks just quoted, I will call attention to the history of the first of the three cases operated on by myself.

The patient was admitted to Bellevue Hospital, August 1, 1883; aged twenty-four; family and personal histories good. About six months before admission he was struck in front of the left ear with a bottle, which was broken by the force of the blow. The wound of the scalp healed quickly under simple dressing. A short time thereafter a pulsating tumor appeared at the seat of injury, which increased in size continuously until the date of admission. On admission a well-defined pulsating tumor was found at the seat of the injury, of about the size of a hen's egg, which had a distinct thrill and bruit. The trunk of the temporal artery, together with the anterior and posterior branches, was involved directly in the growth. The trunk of the occipital artery of the same side was dilated, and its anastomotic communications with the branches of the temporal were dilated also. The patient was kept under observation for a few days to study the peculiarities the tumor might present, but inasmuch as its chief feature consisted in its rapid development, it was decided to tie the external carotid artery of the same side, with the view to arrest the growth, if not to effect a cure.

On August 7, 1883, the vessel was tied in the presence of many of the visiting and resident staff of the hospital. It was exposed in the usual manner for about an inch above the point of bifurcation. The lingual branch arose about half an inch above that point, and it was tied at once with an independent catgut ligature. After this, the trunk of the external carotid was tied with catgut at the origin of the already ligatured lingual branch. The previous tying of the lingual had provided a branchless portion of the external carotid of about an inch in extent. The ascending pharyngeal branches were sought for, but were not found. Nothing unusual was noticed during the operation, except that the internal jugular vein overlapped the external carotid at the seat of ligaturing. The ligaturing of the external carotid checked the pulsation and all other aneurismal manifesations of the growth at once, also reduced its size to about one-third of the previous dimensions.

The operation was done antiseptically throughout, and the wound had healed entirely at the end of ten days, when the first dressing was removed. At this time a slight returning pulsation could be detected in the tumor, which, however, could be controlled completely by pressure on the external carotid of the right side. On August 30, the pulsations had increased, and the thrill and bruit were again noticeable. On September 8, the pulsation, the thrill, and bruit were nearly as strong as before the operation, but they could be controlled readily by pressure made on the occipital and temporal branches of the external carotid of the right side. The temporal branch only of the external carotid of the left side gave any evidence of a return of the circulation. It then became a question of tying the external carotid of the right side, or of tying its temporal and occipital branches alone, or to attack the growth itself directly. The latter plan was chosen, and was carried into effect September 26, only about seven weeks after the primary operation.

I trust that I may be excused if I digress somewhat at this time to describe the details of the method that was adopted for the radical cure of this case. The head was surrounded by two strong rubber bands, beneath which compresses were placed at the points where arteries passed to supply the scalp. By this means the arterial circulation of the scalp was controlled admirably. The growth was then nearly circumscribed just outside of its limits by a U-shaped incision, made through the healthy tissue of the scalp, down to the bone. The stem of the flap was made about an inch and a half in width, and it extended down to the zygoma, and the centre of its long axis corresponded to the course of the temporal artery. The loss of blood was not severe, since a bleeding point could be readily controlled by pressing the vessel against the underlying skull, while its open extremity was being secured. The bleeding points were closed by catgut applied directly to them, when possible. If this could not be accomplished, they were closed by the overhand continuous suture of catgut carried around and through the borders of the divided tissues. The flap and the surface from which it had been raised were kept separated with antiseptic gauze until granulation took place; then they were fastened in apposition by adhesive straps. They united quickly, and a permanent cure resulted one month after the operation.

The following interesting practical facts are presented by this case:

1. The ligaturing of the external carotid of one side had but a temporary effect on a vascular growth that involved the branches of the ligatured vessel.

2. Pressure on the branches of the opposite external carotid artery interrupted the characteristic aneurismal manifestations that were present in the growth at its recurrence.

3. The ligaturing of all the vessels that passed to the growth, except the one of the pedicle of the flap, followed by independent granulation of the surfaces and their subsequent union, resulted in a rapid and complete cure.

I find eight additional cases of ligature of the external carotid for the cure of aneurismal tumors of the head, face, and parotid gland, in two of which both vessels were tied simultaneously. The latter procedure is not reported to have been successful in either instance. Traumatic aneurism of the parotid gland, varicose aneurism of the ear (two cases) are reported to have been cured by ligaturing the external carotid of the diseased side. It appears, however, that the last two cases received other and decided local treatment, which might have had quite as much to do with the cure as the ligaturing of the external carotid. This fact is emphasized by the recollection of the unsuccessful cases just mentioned of a practically similar nature, in which ligature of both external carotids alone failed to effect a cure. Of a total of nine cases, but one, traumatic aneurism

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of the parotid, was cured by ligature alone. These facts force the conclusion that ligaturing of the external carotid of the diseased side, and even of both external carotids, can be considered only as palliative, and cannot be recommended as a means of cure for vascular growths of the head and face, except in connection with other measures.

I do not think it to be a justifiable step to ligature the common carotid alone, nor in connection with ligature of the external or internal carotid for cases like the preceding, since the rate of mortality for ligature of the common carotid is 40 per cent., while that for ligature of the external carotid is 3.62 per cent. This opinion is expressed notwithstanding the fact that the rate of cure for non-orbital anastomotic aneurismal formations is reported by Dr. Wyeth at 28½ per cent. from ligature of the external carotid. It seems to me from these facts that some errors must exist in the primary reports of these cases, since the reverse of these figures would be more consonant with the anatomical bearings of the collateral circulation of the two operations.

Ligature of the common carotid should not be entertained except when from the contiguity of the morbid process the application of a ligature to the external carotid becomes impossible, or when ligature of the external carotid has failed to afford its possible relief; a contingency that is to be anticipated only when the morbid growth is developed at the location of a free anastomosis of the branches of the external carotid and the intracranial circulation, as in intraorbital formations especially.

The second authentic ligaturing of the external carotid, as a preparatory measure, was practised by John Lizars in 1830. It was done to lessen the hemorrhage attendant on removal of the superior maxilla. Preparatory ligature of the external carotid for removal of the superior maxilla, is not necessary for the safety of the patient, except in such cases as, when the patient is ill able to withstand the loss of blood that ordinarily attends this procedure; or to bear the loss that may arise from the removal of the morbid growth that prompted the operation. I am certain, however, that ligature of both external carotids and their ascending pharyngeal branches prior to the removal of large vascular growths involving the superior maxilla and the pharynx, or retro-pharyngeal growths of a similar nature, requiring the preliminary removal of the superior maxilla, should be earnestly commended to the profession. If the growth be of a malignant nature, this plan will not only lessen the hemorrhage attendant on its removal, but may likewise delay the return by lessening the activity of the nutritive processes at its site.

The third case of preparatory ligature of this vessel was performed by Dr. Valentine Mott, about the year 1831, for extirpation of the parotid gland. The swelling of the soft parts contiguous to the diseased gland, complicated the operation somewhat; still, the patient suffered no ill effects from it, but died in less than two months thereafter from a return of the disease.

The rate of mortality of ligation of the common carotid for reputed malignant disease of the parotid gland, antrum, and face (not of orbit), is, according to conclusions of Dr. Wyeth, 44 per cent. from the operation alone, with 15 per cent. of cures resulting therefrom. I have collected nineteen instances of ligature of the external carotid for so-called malignant growths located in practically similar situations, with the loss of but one patient, who died of hemorrhage caused by sloughing of the growth. This case will be fully reported in the course of this paper.

Twenty-six per cent. of these so-called malignant growths are reported as "cured" by ligature of the common carotid. This seems inconsistent in view of the nature of the disease, a fact that was appreciated by Dr. Wyeth when he collected them. It is fair to assume, however, that if ligature of the common carotid will cure malignant disease of the face, ligature of the external carotid should lead also to a similar result. If the idea be to starve a growth, then truly, from anatomical reasons alone, ligature of the external carotid is the far more rational measure; because if the external carotid be ligatured, but comparatively little blood can reach the diseased part except by way of the opposite external carotid, provided there be no unusual anastomosis of the ligatured vessel. If the common carotid be tied for disease associated with the branches of the external carotid of the same side, then blood can reach the diseased part, not only through the opposite external carotid, but also by way of the circle of Willis, and the pervious internal trunk of the ligatured vessel.

With a full knowledge of these anatomical facts, and with the great difference in the death-rate of the respective operations, I fail to find an excuse even for ligaturing the common carotid for disease of the region supplied by the branches of the external carotid, except when ligature of the latter vessel is impracticable.

I will now present for consideration the history of two cases of my own, in each of which the external carotids were tied simultaneously for malignant disease involving the inferior maxilla, the floor of the mouth, and more or less of the tongue. In each of these cases repeated operations had been performed for the removal of the disease. A rapid recurrence had taken place in each instance, until the direct application of the knife seemed no longer feasible. The starvation plan appeared to be then the only one to offer any chance for delay to the course of the growth, combined with the greatest degree of comfort for the patients.

Recalling the fact that in the aneurismal growth, upon which I had previously operated, the collateral circulation from the opposite external carotid had reëstablished the circulation of the ligatured side within two months, and believing that it would likewise exercise the same influence in a similar operation for malignant disease, it was determined to tie both external carotids simultaneously, which was done in the first case on February 2, 1885. The incisions for ligaturing were made in the usual situations, and the enlarged lymphatic glands that were found in their course were removed. When the carotids were reached, most unusual anomalies were found. The right common carotid bifurcated be-

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neath the posterior belly of the digastric muscle, which was divided to admit of the more easy application of the ligature. On the left side the bifurcation was located behind the hypoglossal nerve, which was drawn down and then the ligature was applied just below the posterior belly of the digastric. On the right side the superior thyroid branch was thought to be seen to arise from its usual position. No branches were found above the point of bifurcation for the distance of one inch, and a catgut ligature was applied at the middle of this space. The lingual and facial branches were not seen on the right side, a fact that caused no apprehension, for I had been informed that the facial had been tied some months before, during the removal of the diseased submaxillary gland of that side. I thought also that the lingual might have been associated with the facial, since this arrangement exists in about 25 per cent. of dissections. On the left side the branches of the external carotid were normally arranged. The lingual was ligatured at its origin, and the trunk of the external carotid was ligatured just below this.

No annoyance took place during the operation other than that due to the slipping off of a catgut ligature from the proximal extremity of the purposely divided facial vein, that had covered the artery in the line of the operation. The operation was done antiseptically throughout. The malignant growth diminished in size rapidly; the pain ceased; the discharge became scanty, thin, and watery, and the ability to speak and to swallow improved rapidly. On the fifth day a portion of the tumor on the right side, corresponding to the former site of the submaxillary gland, sloughed out, leaving an opening an inch in diameter, bounded by sloughing tissue, at the bottom of which could be seen necrosed bone of the lower jaw. It had been ordered that the patient be constantly watched from a fear that hemorrhage might occur. On the night of the 11th, nine days after the operation, the patient was discovered deluged with blood, and he died from its loss before morning, in spite of every possible effort of Dr. Pinkerton, the house surgeon. Even transfusion with saline solution was employed.

It was found that the hemorrhage had taken place from the site of the slough before mentioned. An abnormality of the circulation was suspected at once, and the suspicion was confirmed subsequently by a careful dissection. The facial and lingual branches of the right side arose from a common trunk at the bifurcation. The fatal hemorrhage had been caused by sloughing of some of the starved diseased tissue, into which the stump of the abnormal facial artery had passed. The vessels on the left side were not uncommon in their arrangement. The operation-wounds themselves presented no appearances of an unusual character.

It is seen at once that this case presents very rare anomalies of the circulation. It is very rare indeed that the common carotid arteries do not bifurcate at, or between, the upper border of the thyroid cartilage and the greater cornu of the hyoid bone. I can find no record of the lingual or facial ever having arisen from a similar point, as in the above case. Dr. Wyeth, in his report of 121 consecutive dissections of the external carotid and its branches, found but four instances in which the lingual branch was given off at a fourth of an inch above the bifurcation, and in only one of these did it arise independently of the facial branch. In one instance it arose an eighth of an inch above the bifurcation by an independent origin. The average origin of the lingual in 121 cases was 0.68+ inch above the bifurcation. In these same dissections the facial arose at an average of 0.92+ inch above the point of bifurcation. In no instance did it arise independently within less than a fourth of an inch from this point. In one instance only the lingual and facial arose by a common trunk an eighth of an inch from the bifurcation. I have no doubt that if I had tied the branch at the bifurcation which I had supposed to be the superior thyroid, but which was, in fact, the common trunk of the facial and lingual, the patient would not have died from hemorrhage.

The result of this case emphasizes some important facts, viz.:

1. The tying of the external carotids robbed the growth of so much of its vitality that, notwithstanding it was presumably supplied in part by the lingual of the right side, and also by branches of the pervious stump of the facial of the same side, the diseased tissue sloughed and involved thereby the stump of the facial itself.

2. The branches at the bifurcation should be tied when it appears that neither the lingual nor the facial arise from the first inch and a half of the external carotid.

3. The feasibility of simultaneous ligature of both external carotids for the starvation of malignant growths of the regions supplied by their branches, is emphasized by the effects on the growth in this case.

The number of deaths from ligature of the external carotid alone that may be justly attributed to the operation itself, is somewhat indefinite. Dr. Wyeth reports 67 cases of ligaturing, with two deaths occurring after the operation; but, inasmuch as these two patients were still suffering at the time of their death from the gunshot wounds for which the operation had been performed, it is certainly not proper to charge these deaths to the operation alone. I am able to add to this list 16 others, and in but one of these (my own) did the subsequent death of any bear the least relation whatever to the operation itself.

The amount of objection that may be raised to ligature of the external carotid by reason of the death just reported—a death clearly dependent on abnormalities of the circulation not before described—is a matter that I will leave to others than myself to express. Hemorrhage at the seat of the operation has never as yet proved fatal, and it has, as a rule, been controlled easily by simple means, as pressure, styptics, etc. In a number of instances hemorrhage has taken place at the seat of the injury or of the disease, for the relief of which the vessel was tied, and it has required ligaturing of the common or internal carotid of the same side to control it. But, in no instance, can I find that the opposite external carotid has been tied with the same view.

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The second case was performed in Bellevue Hospital, May 10, 1885. It pursued subsequently, in all important respects, a similar course to the first, except that no hemorrhage or sloughing occurred. The patient was discharged from the hospital in one month, much improved, with instructions to report at intervals of a week. He reported at the hospital as requested for the next two months. During this time the growth showed but a little tendency to increase in size. The pain and difficulty in swallowing did not return. However, in the meantime he had developed a profound cancerous cachexia, attended with emaciation and loss of strength. No evidences of internal cancerous involvement were discovered. Finally, he disappeared suddenly, and was not again heard from by myself, even though his recorded address was visited and a thorough inquiry was made to ascertain his whereabouts.

The main objections that are raised against ligaturing the external carotid are the following: 1, the difficulty of the operation; 2, the danger of secondary hemorrhage at the seat of the ligature. It is no doubt true that ligature of the external carotid is not as easily accomplished as that of the common trunk, but this is no reason why it should not be practised in preference to the latter when the comparative results of the two are considered. The linear guides of the two vessels are equally simple. The primary incisions of both are alike uncomplicated, provided the region of the external carotid is not invaded by disease. The deep guides of the external are as plain and unvarying as can be wished. The digastric muscle and the hypoglossal nerve are constant in their relations to this vessel. The lingual vein, the facial vein, and its connections, are obstacles to ligaturing of the external carotid; but, with care, they can be displaced, or they may be divided between two ligatures, and turned aside. The internal jugular vein sometimes encroaches alike on both vessels. The external carotid may be mistaken for the common, as for the internal carotid. The points of origin, size, and direction of the branches of the external should enable the distinction between it and the common trunk to be easily made. The difference in the origin, course, and depth of the two vessels, to say nothing of their differences as to branches, should discriminate between the internal and the external carotids. Finally, if a doubt exists after the ligature is passed, raise the vessel gently from its bed by means of the ligature, and study the effects of the ligature pressure on the branches of the external carotid, and on the trunk of the internal carotid.

Care should be taken not to pass the ligature around both vessels at the bifurcation. This is an error to which the relations and appearances of the vessels in this situation add but little that is reassuring. However, to state the liability of the error should be to signal the danger with sufficient acuteness to prevent its occurrence. It is proper to add in this connection that if ligature of the external carotid be associated with removal of the parotid gland, it should be ligatured as near to the gland as circumstances will permit.

In conclusion I respectfully submit the following propositions:

1. Ligature of the external carotid artery, together with independent ligature of the branches arising from the first inch of its course, is a safe and commendable operation.

2. When the facial and lingual arteries do not arise singly, or by a common trunk from the first inch of the course of the external carotid, the branches arising at the point of bifurcation of the common carotid should be tied.

3. Simultaneous ligature of both external carotids is a rational preparatory measure for operations involving the parts supplied by their branches when dangerous hemorrhage is feared. If the pharynx be involved, the ascending pharyngeal branches should be ligatured also.

4. Simultaneous ligature is advisable as a final expedient to diminish the rapidity of the development of extensive malignant growths when they are nourished by the branches of the external carotids.

5. Ligature of one or both of the external carotids for the cure of aneurismal formations of the branches of the same is not feasible as an independent curative measure.

6. Ligature of the common carotid should not be done for the cure or for the arrest of morbid conditions involving the external carotid or its branches, except as a final resort.

MEDICAL PROGRESS.

POINTS IN THE DIAGNOSIS OF BRAIN DISEASES.—NOTHNAGEL, in an article read recently before the College of Physicians of Vienna, gave the following diagnostic points on the value of headache as a symptom of brain disease:

1. In brain tumors headache is of very little value in diagnosis; we know that the cerebral substance is not sensitive; the pia mater but little sensitive, and the dura mater only, of the cranial contents, is sensitive. Headache occurring in cases of cerebral tumor is explained by tension upon the dura caused by the bulk of the tumor.

2. Headache is present in inflammatory processes situated in the meninges, and more frequently in lepto-meningitis than in pachymeningitis; in lepto-meningitis the headache frequently changes its characters.

3. Headache is present in chronic cerebral hyperæmia and also chronic anæmia; it is questionable whether anæmia alone is the important element in chlorosis, as we see most marked cases of pernicious and intensive anæmia caused by carcinoma in which headache is absent. Headache is rarely present in insular multiple sclerosis; in cerebral abscess its presence and character are extremely variable. The location of the headache gives no certain diagnostic point for the determination of the location of the lesion, although in general terms it may be said in the majority of cases the lesion is where the headache is.

Vertigo, while common in various cerebral diseases, is of little importance; when it is excessive and accompanied by incoördination, such as occurs in diseases of the crura of the cerebellum, it has decided import.

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Vomiting is rarely of great value in diagnosis; it aids chiefly in the location of lesions. It can be present in cases in which the amount of blood in the brain is abnormal, and an irritation of the centre of emesis in the medulla oblongata exists.

We are aided by this symptom in diagnosticating lesions of the tissue in the posterior fossa of the skull; for example, tumors which originating in the cerebellum press upon the medulla; or tumors of the medulla or pons.

Fever is an important symptom in but few cerebral diseases. The highest temperature is present in meningitis, especially in its infectious form. But as peritonitis without fever is often observed, so meningitis may run its course without marked rise of temperature. Fever occurs in cerebral abscess and septic phlebitis of the cerebral sinuses; it has then more often the characteristics of septic fever with pyæmic chills, and does not depend directly upon the phlebitis, but upon pulmonary embolism. Fever also occurs in the course of progressive paralysis. The pulse gives no certain criterion for the diagnosis of a given cerebral disease. It is often, however, of value in the abnormalities of its rhythm in beginning meningitis, in the form of regularly occurring *arythmie* (first described by Nothnagel), where a certain periodicity in the variations of the pulse frequence occurs; the increased number of beats endures but a few moments, and is caused by an irritation of the pneumogastric nerve. The respiration gives no information in the diagnosis of brain diseases.

Regarding disorders of speech, aphonia is seldom present, and the location of the lesion which could cause it, in the medulla oblongata, is such that death generally results speedily in these cases. Speech is affected most often in progressive bulbar paralysis, and frequently in multiple sclerosis in patches. Speech is also implicated in progressive paralysis when the origin of the hypoglossus is affected; also in cortical disease of the lower portion of the central gyrus.—*Wiener medizinische Presse*, No. 13.

PEPTONE SUPPOSITORIES.—SAUTER prepares these suppositories with cacao butter, each containing twenty-five grains of peptone; they are mixed and kept cold to prevent the fat from becoming rancid. In cases where patients cannot be nourished in the normal manner they serve an excellent purpose, fifteen grains of dried peptone equalling two and a half drachms of meat in nutritive value. Children may be given one suppository four times daily; grown persons, two three times daily. The suppository should be lubricated with olive oil, and the rectum previously cleansed by an enema. —*Pharmaceutical Record*, No. 5.

TREATMENT OF TYPHOID FEVER AT ROOSEVELT HOSPITAL.—DR. ASTA-BURUAGA reports, in the *New York Medical Journal* of April 30, 1887, the treatment of forty-five cases of typhoid fever in this hospital as follows:

The treatment was mainly expectant. Equal parts of milk and lime-water constituted the sole diet as long as the fever lasted. Forty grains each of subnitrate of bismuth and pepsin, divided into four doses, were given in the milk daily. Stimulants in the shape of whiskey were ordered according to requirements.

The convalescents were allowed solid food, commencing with tenderloin steak on the tenth to the twelfth day after the subsidence of the fever, and were generally allowed to sit up about five days later.

Small doses of Fowler's solution of arsenic were given, with good results, when the fever was protracted.

Antipyretics were required in several cases. Antipyrine, antifebrine, the cold pack, the cold bath, and the abdominal water-coil were used.

The mortality was 8.88 per cent.

MICROBE OF YELLOW FEVER.—FREIRE, GIBIER, and REBOURGEON describe the microscopic appearances and behavior of this bacillus as follows: The microbe is very mobile; grows rapidly in bouillon when taken from the blood and urine; a dark substance, like black vomit, and having its odor, forms at the bottom of the tubes of culture. Inoculation with the blood of those dying with yellow fever produces an identical disease. Culture liquids undergo spontaneous attenuation in a few days. Inoculations with attenuated cultures have been very successful in the hands of the writers.—*Gazette Hebdomadaire*, No. 12.

THE BACTERIAL TREATMENT OF PHTHISIS.—FILIPOVITCH reported before the Medical Society of Odessa six cases of phthisis treated by Cantani's cultures of bacterium termo in bouillon. Liquid containing the bacteria was flavored with mint and inhaled. Of the six patients three died, two went from the hospital unimproved, one remained. The results obtained were an abundant growth of the bacilli inhaled in the lungs of the patient. The treatment was useless at best; in some cases harmful.—*Les Nouveaux Remèdes*, No. 6.

FORMULA FOR OIL OF MALE FERN.—

℞.—Ol. filicis mar.	. . . .	♏ 45.
Tinct. vanillæ	. . . .	♏ 45.
Syrup. terebinth.	. . . .	℥ 6¼.
Gummi arab. pulver.	. . . .	gr. 30.
Aquæ destillat.	. . . .	℥ 6¼.—M.

This should be taken at one dose, with an equal amount of milk. Castor oil should be given several hours afterward.—*Journal de Médecine*, April 17, 1887.

HOW TO EVACUATE PSOAS ABSCESSES.—DR. OWEN, of London, describes his method as follows: The method of evacuating psoas abscess, which I have adopted in a large number of cases, and which I recommend with confidence, is by a free anterior as well as posterior opening, and by then washing and draining the cavity right through. The first opening I make close above the outer end of Poupart's ligament, using the scalpel until about an inch of the length of the fibres of the aponeurosis of the external oblique has been exposed. I then scratch through the fleshy attachment of the internal oblique and transversalis, and, keeping well below the level of the peritoneum, thrust the director into the swelling. Pus escapes, and the opening is enlarged by the dressing forceps and the finger. A stiff probe is then passed through the abscess cavity and made to project beneath the skin on the outer side of the erector spinæ. With this as a guide, a counter-opening is made in the loin. The large cavity

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is then flushed perfectly clean with a warm antiseptic solution, and a drainage tube of the size of a penholder is laid through the chasm for a few days, being afterward replaced by a silk thread. The parts are liberally covered with bulky pads of wood-wool and finely picked oakum in gauze bags; these are kept in position by a towel arranged as a binder, which, for the sake of compression is tightly drawn and fixed with safety pins. Next day the cavity is again washed out, under chloroform, if necessary, the wounds being dressed as before. After this, the less it is interfered with the better; if the temperature do not rise, and the discharge do not soak through, the dressings may be left for three or four days, or longer. From the first day the discharge becomes thin and watery; suppuration in the ordinary sense of the word is at end, and the cavity steadily contracts into a narrow passage.

If the abscess be so small that the surgeon does not feel inclined to attack it from the front, he may readily work down on to it above the iliac crest, on the outer side of the erector spinæ. The scalpel is needed only for the skin incision, the rest of the operation being performed with equal ease and safety by the use of a steel director and the ring dressing forceps—at any rate in children.—*British Medical Journal*, April 23, 1887.

A SEDATIVE HYPODERMATIC INJECTION.—

℞.—Caffeine	. . . . .	gr. ⅙.
Morph. sulphat.	. . . .	gr. ⅙.
Atropiæ sulphat.	. . . .	gr. $\frac{1}{120}$.
Aquæ camphorat.	. . . .	♏. 20.

Its use is said to be without the disadvantages of morphia alone.—COCHRANE in the *Revue de Thérapeutique*, March 15, 1887.

OIL OF ERIGERON.—DR. BARTHOLOW writes as follows in the *Physician and Surgeon* for April, 1887:

That oil of erigeron is entitled to the repute it had at one time as a remedy for certain kinds of hemorrhage, I am well assured by recent experiences. Some time since, casting about for a remedy in a case of metrorrhagia that had severely tried my resources, I fell on erigeron oil, but with a rather despairing sense of its probable inutility. I was proportionally pleased to find that it acted admirably. As one case can no more establish the value of a remedy, than one swallow can make a summer, I have since made numerous observations with the view to ascertain its real powers. I am accordingly in a position to re-affirm the statements formerly made, and to express my belief that in oil of erigeron we have a valuable remedy for certain cases of menorrhagia and metrorrhagia, and probably, passive hemorrhages in general. In some cases of *neurasthenia*, it now and then happens that menorrhagia becomes an embarrassing complication; but I have found erigeron oil to act very efficiently, and while it has moderated the flow to proper dimensions, has improved the general condition, and lessened the nervous irritability.

For the most part, the uses of oil of erigeron for the conditions above mentioned are not novel. Finding, however, that it is a really effective remedy in menorrhagia and metrorrhagia, I then had recourse to it in those conditions having their origin in albuminuria, and then it was I ascertained that it checked remarkably the waste of albumen. From this point it was but a step to observe how far this remedy affects the course of Bright's disease—or such chronic forms of albuminuria as are due to tubal and interstitial nephritis and the cases combining these two morbid processes. No attempt was made to arrive at an exact differentiation, if indeed such be possible. It suffices to state that the chronic cases of nephritis united by the common symptom—albuminuria—were included. In the chronic form of Bright's diseases, erigeron oil lessens the amount of albumen, lowers the abnormal vascular tension, and improves the general condition; it has also seemed to have a most favorable action on the headache, the nausea, and other symptoms of uræmic character. Whether it be actually curative in cases not too far advanced, can be determined only by careful and sufficiently protracted trials. Thus far it can be said to promise well.

Oil of erigeron also acts in a very beneficial manner in cystitis, lessening the irritability of the bladder, and diminishing the catarrh. In a case of prostatic disease with very great irritability of the bladder and much catarrh, it seemed to have an excellent effect.

In catarrh of the bronchial tubes, chronic bronchitis, and in cough of a nervous character, I have seen very considerable relief given by it. Indeed, in these affections it has seemed to me to afford as much relief as *terebene*, which has been much vaunted of late, and with justice.

In administering it, I have usually directed it in five drop doses every three or four hours. It may be conveniently dropped on a lump of sugar. It appears to me to do better in moderate doses rather frequently administered, so as to maintain a constant impression, than in occasional larger quantity.

PHTHISIS IN FAMINE.—DR. PORTER, of the Madras Medical College, writes as follows in the *Indian Medical Gazette*, No. 2: In 459 consecutive autopsies made during the Madras famine of 1877–1878, tubercular deposit was found in one or both lungs in thirty men, 13.3 per cent., twenty women, 12.8 per cent., and in one child. The deposit was present in both lungs in eighteen of the men and in sixteen of the women, was confined to the right lung in three of the men, the child, and three of the women, and to the left lung in nine of the men, and in one woman. The disease was latent in eighteen men, thirteen women, and in the child; death having been due to alvine flux in all these, except two men who died from dropsy, and one who died from starvation apparently. In the remaining twelve men, 5.3 per cent., and seven women, 4.5 per cent. of the total, death was due to phthisis pulmonalis, and these are the cases of which it is proposed to treat here. It may be noted that in nine thousand two hundred and sixty-six admissions to the Royapettah Hospital, two hundred and sixty-two, or 2.8 per cent., were from this cause.

A PRESCRIPTION FOR AFTER-PAINS.—GUÉNIOT, of Paris, gives the following prescription:

℞.—Aquæ tiliæ (linden flower water)		℥22½.
Tr. digitalis	. . . .	gtt. 12.
Aquæ lauro cerasi	. . .	♏ 15.
Syrup of codeia	. . . .	℥6¼.—M.

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This should be taken in three doses in the course of the night, commencing at 9.30. When febrile reaction follows delivery, the prescription is modified as follows:

℞.—Aquæ tiliæ . . . . ʒ22½.
Tr. digitalis . . . . gtt. 15.
Aquæ lauro cerasi . . ♏ 15.
Syrup codeia . . . ʒ8¾.
Tinct. aconit. rad. . . gtt. 6 to 10.

Syrup of codeia will be recognized as not belonging to the U. S. Pharmacopœia; the alkaloid codeia is in use in the muriate, sulphate, and phosphate; doses of ⅙th of a grain hypodermatically, ¼ of a grain by the mouth, have been given; 10–15 grains have been given in one day in the treatment of diabetes. The rule usually observed in using codeia is that its dosage is about double that of the morphine salts.—*Les Nouveaux Remèdes*, March 24, 1887.

LONG-CONTINUED USE OF CAFFEINE AS A HEART TONIC.—HUCHARD in *Revue Générales de Thérapeutique*, April 7, 1887, recommends the following formula:

℞.—Caffeine, .
Sodii benzoat. . . . . āā gr. 45.
Ext. stigmat. maidis . . . gr. 90.
Ol. anisi . . . . . gtt. 3.
Ft. pil. 60 in num.
Sig.—Four to six pills daily.

CATARACT PRODUCED BY SOUND.—VON STEIN, of Moscow, has performed the following interesting experiments, which are quoted in the *Ophthalmic Review* for April, 1887:

The experiments were made upon guinea-pigs. Careful observation in every case showed that the media of the eye were clear at the outset, thus excluding the natural opacities sometimes observed in very young animals. The animal was placed in a box to which an electric tuning fork was attached. Here it was kept for several days before the fork was set in action, in order to exclude the possible influence of the confinement in the box, which admitted no light.

Experiments, eighteen in number, were made upon very young animals, with a positive result in every case.

In the first case detailed the animal was two days old. The tuning-fork gave the note D, 100 vibrations per second. The animal was at first restless, and squeaked. Pulse and respiration quickened. From three to four hours later the pupils were widely dilated and sluggish. After about twelve hours the posterior lens surface showed a stellate opacity, the rays of which were feather-like, especially toward the equator; there was also a general slight cloudiness of the lens. These appearances lasted about twenty-four hours. Gradually the central portion became clearer, while the star faded and finally disappeared. Meanwhile, however, three grayish-white triangular opacities made their appearance at the equator, and gradually extended toward the centre, but did not reach the latter. In four or five days all these changes had vanished, the fork acting continuously meanwhile.

With a three days' old guinea-pig, and a fork of 250 vibrations, a stellate figure appeared on the anterior lens surface at the end of twenty-four hours, and on the posterior surface the following day; the further course was the same as in the former case.

With a five weeks' old animal, and a fork of 100 vibrations, white opacities appeared after about forty-eight hours around the whole equator of the lens; all opacities disappeared in a week.

In eyes enucleated for examination was found sometimes anterior stellate cataract, sometimes posterior stellate cataract, sometimes posterior cortical cataract, or all these varieties in combination.

In adult animals no changes were produced. The phenomenon was exhibited to nearly all the oculists in Moscow.

The author expressly declines to advance any hypothesis to account for the facts observed, but we may permit ourselves some speculative consideration of the matter. An analogy at once suggests itself between the effect of this terrifically loud music on the newborn guinea-pig and the lental disturbance which is known to follow convulsion in the human infant. There is much evidence to show that the tender growth of the human lens may be disturbed or arrested *in utero* by shocks to the system of the mother; and there can be little doubt that the nutritive disturbance which occurs during infantile convulsions suffices to damage the lens fibres then in process of formation. We can well imagine that twenty-four hours' confinement in the resonator of a tuning-fork would powerfully impress the nervous system and the nutrition of a more vigorous being than a newborn guinea-pig; during the period of infancy a lental opacity seems a not improbable expression of such disturbance. It is not necessary, we imagine, to regard the cataract as a direct vibratory disturbance of the lens. It would be interesting to know whether the infant animal was separated from its mother during the ordeal, whether its temperature was maintained, whether it obtained and willingly took a normal supply of nourishment during the period in question, and whether any other signs of perturbation were present. Whatever be the explanation, the fact is most interesting.

A VERMIFUGE POWDER.—

℞.—Calomel . . . . . gr. 2¼.
Santonine . . . . . gr. 1½.
Sacchar. lactis . . . . gr. 15.—M.

This powder should be given in the morning, when the stomach is empty, in a little honey. The dose is for a child four years old.—BOYMOND, in *Journal de Médecine*, April 17, 1887.

VACCINATIONS AGAINST YELLOW FEVER.—FREIRE, GIBIER, and REBOURGEON, report their results as follows (6524 patients were treated):

The mortality in Rio Janeiro, from January, 1885, to September, 1886, was 1675, of whom only 8 had received preventive vaccination; mortality rate among the non-vaccinated, 1 to 100; among the vaccinated, 1 to 1000.

The official bulletins show no epidemic during this time, a result not obtained for thirty-five years previous. The vaccination was gratuitous, and wholly inoffensive. —*Gazette Hebdomadaire*, April 8, 1887.

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SATURDAY, MAY 14, 1887.

TYPHOID FEVER IN DRINKING WATER.

THE value of any source of supply of drinking water has been shown by Koch's recent researches to depend largely upon the number of bacteria the water contains, and the present great desideratum of the water analyst is a simple, unmistakable test for their identification. It will be remembered that Dr. Prudden, in his recent biological study of Hudson River ice (THE MEDICAL NEWS, March 26, 1887), while he found large numbers of various bacteria in the water, failed to discover any pathogenic microorganisms, although he strongly suspected their presence. DR. THOINOT, however, we learn from a recent number of the *Gazette Hebdomadaire*, has been more fortunate, and has detected the bacilli of typhoid fever in water taken from the Seine very near the point at which the supply for the city of Paris is obtained.

The French have given much attention recently to the contagion of typhoid fever, and they have especially studied its bacillus. Our readers will recall the recent interesting case of a family at Pierrefonds near Paris, who were inoculated with the bacilli after a single use of contaminated water (MEDICAL NEWS, December 11, 1886), and the epidemic, in 1885, at Plymouth, in our own country, by which nearly a whole village was decimated by the careless emptying upon the ground of the undisinfected excreta of a single typhoid fever case (*Ibid.*, May 16, 1885), as well as the investigations of Chantemesse regarding the influence of disinfectants upon the typhoid germ (*Ibid.*, April 30, 1887). The persistence of life and the continued virulence of the typhoid bacilli after exposure to the atmosphere and the mechanical effects of a body of flowing water are questions of the greatest importance. It is well known that the diffusion and oxidation of inorganic poisonous matter in running water is Nature's greatest provision for maintaining its purity; but whether poisonous protoplasm undergoes like destruction is not so certain. We may hope that ptomaines developed in an infectious disease and voided with the dejecta will be readily oxidized and decomposed, but if the bacilli of such diseases are to survive their transit through various channels until they appear as living and virulent bodies in our water supply, the danger of infection is greatly increased.

Prudden's investigations upon the presence of bacteria in ice have dispelled the common belief that freezing purifies water. Similar investigations in Germany have yielded identical results. As Sternberg has found the death temperature of the typhoid bacillus to be 132.8° F. (THE MEDICAL NEWS, April 30, 1887), the most rational and convenient germicide at our disposal is heat, and should the slightest suspicion exist regarding the purity of a water to be drunk it should be thoroughly boiled.

It is still safer, however, to strike directly at the source of danger by disinfection of excreta immediately upon their discharge. For this purpose the standard solutions of chloride of lime or of bichloride of mercury and permanganate of potassium, recommended by the Committee of the American Public Health Association, in THE MEDICAL NEWS of April, 18, 1885, should be in common use, and nurses and attendants should be familiarized with the simple procedures necessary for disinfection.

The examination of water to determine its fitness for drinking purposes is becoming recognized as largely a bacteriological study; and it will be one of the most substantial achievements of the bacteriologist when tests for pathogenic bacteria in water are brought into common use.

THE AFTER-TREATMENT OF CATARACT.

IT has recently been alleged that a revolution has occurred of late in the after-treatment of cataract operations, and in the last report of the Presbyterian Eye, Ear, and Throat Charity Hospital of Baltimore, Dr. J. J. Chisolm presents the most enthusiastic statement concerning it. He says that

"In May, 1886, eight months since, a series of experiments were commenced at this hospital, having for their object the doing away with much of the restraint deemed heretofore needful for the successful treatment of cataract patients. At that time in all parts of the world there was a uniform method of treatment in the hands of all eye surgeons. Immediately after an operation every cataract patient had both eyes bandaged with heavy compresses so as to exclude all light. They were then put in dark rooms confined to bed, lying on their backs, with instructions to keep very quiet. They were restricted in their diet, and food was given

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to them lying down. . . . . The revolutionary treatment which was instituted at this hospital consists in substituting a strip of the thinnest isinglass plaster for the thick bandages and compresses. . . . . Light sufficient to permit of reading to patients was admitted into the chambers. Patients were not confined to bed, but were permitted to dress daily and eat their usual meals, in this way removing all restraint as to their diet. . . . . The experience of this hospital were published in a medical journal, and so important was it considered that it was copied from one to another till it went the rounds of the medical press abroad as well as at home. . . . . The good work done at our Charity Hospital is evidently not restricted to Baltimore or even the surrounding States. It is far-reaching, extending to very distant countries and to people who speak in unknown tongues their gratitude for release from over-careful, and at all times very annoying, treatment, now proved to have been always injurious."

While this statement may be well calculated to awaken the enthusiasm of the friends and patrons of the hospital, for whose reading it seems, primarily, to have been prepared, and will serve to refresh and invigorate "that local pride which is peculiar to London, Paris, Timbuctoo, and Little Pedlington," when placed before the profession it is likely to call forth criticism as to its accuracy.

What are the facts? For ten or fifteen years, as he states in the *Archives of Ophthalmology* for September, 1886, Dr. Charles E. Michel, of St. Louis, had "discarded bandages and darkened rooms, closing the eye with a single piece of gold-beater's skin one and a quarter inches long by one-half inch wide," and, he says, "I never had any bad results supervene which I could reasonably suspect were even remotely due to this mode of treatment."

When Dr. Chisolm was in St. Louis in May, 1886, at the meeting of the American Medical Association, he stated, by request, before the Section on Ophthalmology, one afternoon, what he had learned that morning, of Dr. Michel's plan of treatment, adding that he thought it seemed reasonable, and that he proposed to give it a trial when he returned to Baltimore.

While we may credit originality to Dr. Michel, he cannot establish any claim to priority in the matter. Twenty years ago, Dr. Levis, in his services at the Pennsylvania Hospital and Wills Eye Hospital in this city, and in private practice, discarded the use of the bandage, substituting adhesive plaster applied to the lids, and keeping patients in undarkened rooms. His plan of dressing and treatment was described in the *Archives of Clinical Surgery* for 1876, page 76, by Dr. John B. Roberts; and we know that Dr. Levis and Dr. Roberts have employed it ever since. Moreover, at the last meeting of the American Ophthalmological Society, Dr. C. R. Agnew said:

"Thirty years ago, coming back from abroad, I adopted the plan, learned of Wilde, of Dublin, and employed also in the Royal London Ophthalmic Hospital, of closing the eye after cataract operation or iridectomy with two narrow strips of isinglass plaster, each one-fourth of an inch wide, placed across the centre of the palpebral slit. For many years I used that method exclusively, It was not until Gräfe so influenced us that I resorted to the use of a modified method of bandaging. In my experience it has never been the practice to incarcerate patients, after a capital operation on the eye, in a dark room, The institutions with which I have been connected have always been as light as any other hospitals."

It seems scarcely necessary to pursue this subject further; we have no desire to rob Baltimore of her due. We freely admit that the change referred to may have constituted a great improvement in the treatment of cataract cases in the Presbyterian Eye, Ear, and Throat Hospital. Unquestionably, to the genius of Baltimore belongs the credit of first calling this change of treatment a "revolution," and of so proclaiming it to "very distant countries;" and we earnestly desire that the stream of gratitude "in unknown tongues" may continue to pour upon her, to the honor of her institutions and the emolument of her surgeons. But as to the after-treatment of cataract cases, a conscientious regard for the truth compels us to say that some good surgeons dispense with the bandage, and have done so for thirty years or more; a larger number of good surgeons prefer to use it; and the amount of restriction advisable is not fixed, but varies with the circumstances of each individual case.

DEATH FROM ELECTRICITY.

SINCE electricity has become the winged Mercury of our time a familiarity has arisen which has bred a partial indifference to the dangers of the electric apparatus now in common use. Within the past week two cases of sudden death from such cause, occurring within two or three days of each other, have been reported.

While our knowledge of the phenomena caused in the human body by electricity is not inconsiderable, we know comparatively little regarding death from electric shock. We find that practical electricians recognize a marked difference in the susceptibility of different persons to electricity, and only employ men to work upon the electric light, who, after trial, are found to be not shocked by the ordinary manipulations which are deemed entirely safe. At the inquest upon a recent fatal case, a workman was brought before the jury, who had severed a circuit of forty-eight lamps, possessing an electric force of over 2000 volts. Although made insensible by the shock, and fastened by muscular spasm to the wires, he was rescued by his comrades. The length of time that he was subjected to this tremendous shock, which was not only the primary current but the current of reaction as well, was several minutes. He recovered consciousness very soon, and although

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his hands were severely burned, he made a good recovery.

In one of the recent fatal cases, the workman was splicing a circuit: a projecting piece of severed wire at the junction of the positive and negative wires is supposed to have touched his face while his hand upon the other wire completed the circuit. He thus "shunted" a current of about 2700 volts, from fifty-eight lamps. When we remember that the resistance of the human body, from one hand to the other, is seven or eight times that of the Atlantic cable, and that from the side of the face to the opposite hand is about 5000 ohms, while the resistance afforded by the circuit of fifty-eight lamps on which the man was working was not more than 300 ohms, the reason of the shock is apparent. The shock received in this case was much less than that in the first accident, where the circuit was deliberately cut and the powerful current of reaction was added to the original force. It is possible that had the workman in the second case been promptly removed from the wire he might have been resuscitated; but the influence of individual susceptibility must be an important factor in recovery.

Acting upon this fact, it is the invariable rule of one of our largest electric lighting companies, that when a workman goes upon a pole, or applies tools to the mechanism, the wire or lamp is to be touched by the finger tip; if an unpleasant shock is received, work is not to be done at that time, or extra precautions are to be observed. It is also a rule that the circuits are tested at a certain hour each day so that workmen upon the line may avoid the lamps at this time. Machinery becoming disabled is not to be investigated by its attendant workman, but the superintendent is to be notified. With these precautions work upon electric machinery is not more dangerous than upon other mechanisms. As to its mortality, the superintendent of the company above referred to, was able to recall but nine deaths in different American cities, and in various companies in seven years, and most of these, he said, were caused by carelessness.

As to the *modus operandi* of the shock, the post-mortem examination of the recent case in this city revealed extensive fluidity of the blood, and the disintegration of its corpuscles as the most noticeable condition present. At a meeting of the French Academy of Sciences, on April 4, 1887, ARSONVAL reported, according to the *Gazette Hebdomadaire*, of April 8, 1887, some recent studies upon the mode of death by electricity, which showed that its action was—

1. Direct or disruptive, causing instantaneous, irremedial death by disintegrating effects upon the nervous, vascular, and muscular tissues, which lose instantaneously their physiological properties.

2. Reflex, exciting the bulbar centres in a manner similar to mechanical irritation. In this category is the action of the generators of electricity used in various industries. This reflex action is accompanied by the phenomena of "action at a distance," studied by Brown-Séquard under the names of inhibition and dynamic generation. These phenomena are thought to be the cause of the variation in the effects and lesions produced by the electric shock in different organisms.

Death by shock from generators used in industrial mechanics is thought to be due to reflex arrest of respiration and resulting asphyxia; and the practical deduction from the observations made, is that artificial respiration and other resuscitating measures should be employed in such cases, and with reasonable hope of success if aid be given with sufficient promptness.

PILOCARPIN IN LUNG AFFECTIONS.

THIS well-known alkaloid of jaborandi is experiencing the fate which has befallen so many medicines introduced to the profession with too laudatory statements. For three or four years after its discovery in 1876, the journals were full of observations, experimental and clinical, relating to its virtues, and it was felt that a really valuable addition had been made to the Pharmacopœia. Of late it has lost favor, and there are large institutions in which it is not given once in six months, and we know practitioners who have not ordered a dose for two years. This disuse has arisen in great part from the unpleasant symptoms which occasionally follow its administration, particularly the collapse and vomiting, with depression of the circulation; but too much has perhaps been made of these untoward effects. At any rate, we are glad to see in *Berliner klin. Wochenschrift*, No. 15, 1887, that RIESS, the former Director of the Berlin City Hospital, calls attention to its value in certain lung diseases. In 1880–81 he first employed pilocarpin for the purpose of increasing the secretion of the bronchial mucous membrane, and has ever since made use of it with the most satisfactory results. In cases of old and obstinate emphysema and bronchitis, with dry catarrh and attacks of asthma, the hypodermic administration of $\frac{1}{8}$ to $\frac{1}{7}$ of a grain usually caused a copious secretion from the bronchial mucous membrane, and brought relief after two or three injections. In cases with dyspnœa of a paroxysmal character the action was often remarkably prompt. Possibly also in true bronchial asthma it would be of service, inducing relaxation of the mucous membrane by the copious transudation.

In pneumonia, Riess has used pilocarpin in the stage of resolution, to hasten the removal of the exudate. In six cases the injection was begun the

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day after the crisis, and repeated for six days. Resolution took place rapidly, with the expectoration of a copious frothy sputum. In two instances of delayed resolution the action was very prompt.

In the whooping-cough of older children ½ of a grain daily for from eight to fourteen days was followed by a reduction in the frequency and intensity of the spasms, and the thick, tenacious mucus was more readily expectorated.

In a prolonged experience with the drug, Riess has not seen any dangerous results, though vomiting may occur after the first dose. In the above-mentioned conditions the indications point clearly to its use, and in this direction the remedy is worthy of a more extended trial than it has heretofore received.

DR. ALFRED MEADOWS died suddenly at London, on April 19th, from heart failure caused by acute abdominal pain: he was aged fifty-five.

Among many important positions which he held he was physician-accoucheur to St. Mary's Hospital, and lecturer on midwifery and the diseases of women and children. He had been very active as secretary of the Obstetrical Society, and in 1884 was first president of the British Gynecological Society. He was the author of a manual of Midwifery, and translated and compiled several important works.

THE sixth German Surgical Congress, which met last month at Berlin, elected Volkmann, President, and Bergmann, Vice-President, and Billroth and Spencer Wells, honorary members.

DR. BROWN-SÉQUARD has just been elected President of the Société de Biologie, to serve for five years.

REVIEWS.

MEDICAL ELECTRICITY. By ROBERTS BARTHOLOW, A.M., M.D., LL.D., Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia, etc. Third edition. 8vo. pp. 304. Philadelphia: Lea Bros. & Co., 1887.

THE fact that this work has reached its third edition in six years, and that it has kept fully abreast with the increasing use and knowledge of electricity, demonstrates its claim to be considered a practical treatise of tried value to the profession.

The matter added to the present edition embraces the most recent advances in electrical treatment.

The author's experiments have led him to believe that the direction of currents of galvanic and faradic electricity has less influence than the strength of the currents in producing given effects; this fact is of importance in estimating the effect of currents upon the vaso-motor and sympathetic systems.

The German nomenclature for the normal formulæ of electro-physiology is adopted in the present edition.

The interest which the recent study of neuritis has excited will be gratified by a description of its electrical treatment. Apostoli's treatment of chronic metritis and endometritis is described, and the value of electricity in gynecology is clearly set forth. In extrauterine pregnancy the author considers electrical treatment incomparably superior in the hands of any but an accomplished laparotomist, to laparotomy. Newman's treatment of urethral stricture receives full exposition. The galvanocautery and lamp, and the "electric osteotome" of Dr. Roberts, of New York, are fully described. Newman's recent treatment of enlarged prostate and villous granulations of the bladder, is quoted in the language of its originator; and a description of the electric light in its recent applications to medicine, and apparatus for producing heat, with a discussion of thermo-electricity, close the volume.

The illustrations are abundant and clear, and the work constitutes a full, clear and concise manual well adapted to the needs of both student and practitioner.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, April 27, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

CASE OF FRACTURE OF THE FIFTH CERVICAL VERTEBRA, WITH RECOVERY.

DR. GERSTER presented a patient who had recovered from this injury, and related the following history: E. H., æt. thirteen, while bathing at the seashore on August 6, 1886, dove into shallow water and struck his head so violently against the bottom that he was stunned. He was taken from the water by his playmates and was carried to a neighboring hotel. The local physician found that there was paralysis of the left upper and lower extremities, and of the bladder and rectum. There was also paralysis of the right upper extremity (with the exception of the shoulder-muscles) and paresis of the corresponding leg. He saw the boy in consultation on the 8th of August, and found, on examination, that the spinous process of the fifth cervical vertebra was depressed and gave marked crepitus on stretching the patient's neck and then letting go of it. The spinous process of the fourth was abnormally prominent. The head could not be held up without support, and when released it fell over to one side if the boy was supported in a sitting posture. Not knowing that his neck was broken, the family had him sit up in bed, when he complained of severe pain in his head. Weight-extension was applied, and the bladder was emptied by catheter. On the 10th of August he was able to pass his water naturally. By the 25th there was a marked improvement in the right side. The patient was then brought to the city and was placed under Dr. Lange's care at the German Hospital. In October he began to walk with crutches, and he has continued to improve ever since. His gait is still atactic, while the left arm exhibits evidences of ulnar paralysis, especially the "main en griffe;" the

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extension of the hand on the arm is incomplete, and as soon as we let go of it it at once recovers its former position. The muscles of the arm and forearm are atrophied and their condition has been but slightly improved by massage and galvanism. No abnormality of outline was to be detected in the neck now, the fracture having become firmly consolidated, while the irregularities observed in the projection of the spinous processes had been smoothed down by the callus. A symptom frequently described by authors—*i. e.*, priapism, had not been present.

DR. PETERS asked how the extension had been obtained.

DR. GERSTER replied, by means of Glisson's apparatus, and also by elevating the head of the bed. In reply to other questions, he said that the patient had experienced relief within thirty-six hours after extension was applied; that a prominence had been felt in the pharynx, which was quite distinct. The patient probably recovered because there was no interference with respiration. There was no paralysis of sensation. No displacement at present could be felt.

CASE OF OLD THORACIC FISTULA CURED BY ESTLANDER'S OPERATION.

DR. GERSTER presented a patient with this history: J. S., æt. twenty-one, a clerk, had empyema of the left side for upward of a year. When he came under his care he had lateral curvature, a large fluctuating swelling, and a sinus in the back, from which issued a profuse, fetid discharge, while he was much emaciated, and suffered with hectic, sweating, etc. On August 25, 1879, Dr. Gerster incised the extensive burrowing abscesses of the thorax, resecting portions of the seventh and eighth ribs, in order to gain room for a large-sized drainage tube. There was a rapid improvement in the patient's condition, but the cavity did not close. On January 3, 1880, he exsected portions of the third, fourth, fifth, sixth, and seventh ribs in the axillary line, making a vertical incision, the exsected pieces increasing in length from above downward. The wound was packed with gauze, to prevent too rapid repair of the ribs, and a wide bandage was applied. On April 11, 1880, the patient was discharged cured, the cavity having healed, leaving a deeply depressed cicatrix. At present there is no lateral curvature, the ribs have entirely reformed, and make normal respiratory excursions, and there is proper expansion of the left lung.

DR. BRIDDON asked if Estlander did not make a longitudinal incision.

DR. GERSTER said that he did, but the important point was the principle of removing the ribs; it seemed better to make a single vertical incision rather than a number of horizontal ones.

DR. BRIDDON remarked that he had once removed five ribs by a single vertical incision, and had been criticised at the time for so doing, on the ground that there was more hemorrhage than there was when the incision was longitudinal.

DR. GERSTER thought that the amount of hemorrhage was not determined by the length of the incision alone. In his own case there was but slight bleeding, since the principal vessels could readily be seen and secured before they were divided. In reply to a question by Dr. Sands, he said that the piece removed from the upper rib was not over one and a half inches in length, that from the lower rib about two and a half inches. The thickened pleura was not removed.

DR. SANDS asked Dr. Gerster if he had any idea as to the nature of the nerve-lesion in the case of fractures of the vertebra.

DR. GERSTER replied that, since sensation was not impaired, he was disposed to believe that the motor roots of the cervical nerves on the left side had been subjected to crushing or pressure by fragments, portions of the trunks supplying the left upper extremity, probably being destroyed in their continuity. The transient paralysis of the bladder, rectum, and the extremities of the right side seemed to have been dependent on pressure by bloody effusion. It was very doubtful that weight extension caused the disappearance of these paralyses; it was more probable that absorption of the effused blood was followed by improvement. However, the patient derived a great deal of comfort from the fixation afforded by the extension.

DR. J. D. BRYANT read a paper entitled

THREE CASES OF LIGATURE OF THE EXTERNAL CAROTID ARTERY, IN TWO OF WHICH BOTH VESSELS WERE TIED SUBCUTANEOUSLY.

(See page 542.)

DR. SANDS remarked that he had listened with interest to the paper just read, but that he could not agree with some of the conclusions arrived at by the author. It was doubtless well to reiterate the fact that, on the score of both safety and efficiency, ligature of the external carotid artery should often be performed in preference to that of the common trunk. But the principles advanced of resorting to ligature of the external carotid as a preliminary step to the excision of tumors have long been regarded as unsound. The formal ligature of the external carotid, although quite practicable, is not an easy operation, and ought not to be performed unnecessarily. Experience has proved that large tumors of the face, and especially those situated in the parotid region, can be successfully removed without adopting the precaution referred to. Moreover, it has been shown that the preliminary ligature of the principal trunk does not always have the desired effect of preventing hemorrhage, which is maintained by the anastomotic branches.

Dr. Sands also dissented from the proposal made by the author of the paper to tie the external carotid with the view of preventing or retarding the progress of a malignant growth. The anastomotic channels are so numerous and free that little or no benefit can be expected from such an operation, and he believed that the uselessness of this practice has been freely demonstrated.

DR. WEIR agreed with Dr. Sands in his last criticism. Practically he thought that it must very rarely happen that the surgeon was obliged to tie the external carotid before excising the jaw. He had never thought of doing this in cases of maxillary tumors, because it is possible to ligate vessels as they are exposed, or the facial artery may be compressed by means of a clamp introduced into the mouth. The gush of blood that follows the first incision seems very large at first, but the hemorrhage is soon checked.

DR. STIMSON testified to the fact that in one of the cases reported there was a rapid diminution in the size

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of the growth, and also in the amount of the discharge, when the lingual was not tied, although the tumor was within the mouth. Hence the diminution of a growth does not seem to be dependent on the diminution of the blood-supply.

DR. BRYANT said that he was aware that ligation of the artery for the arrest of morbid growths is not always successful. There are many cases on record in which the hemorrhage attending excision of the jaw has been diminished by preliminary ligation of the external carotid. In his own case the disease rapidly recurred, and the use of the knife did not seem to be justifiable. After ligation of the arteries, whether less blood was supplied to it or not, the vascular morbid growth became anæmic, sloughing occurred on the right side, and the patient recovered the ability to swallow and articulate. One tumor was kept under observation for two months, during which time it did not increase in size. There is no reason, he added, why, if we can prevent blood from going to a part by tying the artery, we can not delay the growth of a tumor by diverting the blood from it.

DR. SANDS called attention to the fact that there is no true analogy between the operation of tying an artery for the cure of an aneurism, and the same procedure as practised for the arrest of a malignant growth. In the former case, the object aimed at is to prevent, or retard, the current of blood in the aneurismal sac, and thereby to accomplish by coagulation a complete and permanent cure. But the tying of an artery in the case of a growing tumor can at best be regarded as a palliative measure; and its value, in this respect, is certainly problematical. We should not confound cause with effect. The growth of a tumor is not determined to any extent by its supply of blood. On the contrary, the supply of the latter is generally equal to the demand, the vessels enlarging to keep pace with the rate of growth. When the anastomotic channels are free, ligature of the main vessel may have very little influence in diminishing the vascularity of the parts to which its branches are distributed. He once noticed, after tying the common carotid, that pulsation could be felt six hours later in the temporal artery on the side of the operation. He referred to a case cited by Erichsen in which both common carotids and one vertebral artery had been gradually obliterated from disease and operation combined; yet the nutrition of the brain was maintained by the remaining vertebral. Opinions expressed in regard to the retardation of a growth, caused by the ligation of an artery, are usually so vague as hardly to be within the limits of scientific inquiry. The utility of the practice was evidently not demonstrated in the case of Dr. Bryant's patients, one of whom died from hemorrhage after the operation, while the other continued to be unrelieved.

DR. STIMSON desired to place on record the fact that he had tied the external carotid, several years before, in order to arrest the growth of epithelioma of the mouth; the patient lived for several weeks after the operation, but there was no evidence that any benefit had resulted from it.

CASE OF PAROVARIAN CYST THAT DEVELOPED EXTRA-PERITONEALLY.

DR. GERSTER exhibited a specimen, and related the following facts concerning the case: The patient from whom it was removed was a young married woman, æt. twenty-one, who became pregnant about four months after marriage, and had an abortion. Examination at that time revealed a sessile tumor occupying the right iliac fossa. The patient was seen by a gynecologist, who advised waiting until a pedicle should form. The reader examined the lady in March, and found that the cyst in question was about the size of a child's head, and filled the right iliac fossa; it was immovable, and seemed to be generally adherent. On the 6th of April Dr. Gerster performed excision of the tumor. On dividing the tissues in the median line, down to the usual situation of the peritoneum, that membrane could not be found, but the cyst was exposed and tapped, a clear, yellowish fluid being withdrawn. The sac was then enucleated with the fingers, adhesions being successively ligated and divided, until the pedicle was reached, deep within the pelvis, near the right cornu of the normal uterus. The cyst was of the parovarian variety, and had grown outward between the layers of the broad ligament, until it reached the parietal peritoneum, which it had dissected up from the iliac fossa, following the course of an extraperitoneal abscess. A piece of peritoneum, about one-third of a square foot in area, was excised. Two drainage tubes were introduced, and the wound was closed with plate sutures.

On the day following the operation the patient, who had reacted well, suddenly developed tympanites, while her pulse became very rapid, and her respirations rose to forty; in fact, she appeared to be in a condition of shock similar to that observed after severe blows upon the abdomen. The tympanites was spontaneously relieved on the fourth day; her pulse improved under stimulation by enemata of brandy and hot water, and she subsequently made a good recovery, her temperature falling from 101.7° to normal. Bloody urine and some uterine flow were observed for a few days. The patient was out of bed on the thirteenth day.

The interesting feature in the case was the sudden development on the second day of symptoms of shock, although there certainly could not have been what is commonly called shock at such a late period; neither could peritonitis have appeared and disappeared so rapidly. There were no evidences of septic trouble, no vomiting or abdominal tenderness, but the main disturbance seemed to be in the circulation. The reader suggested, as a probable explanation, the occurrence of a localized coagulation—necrosis in the widely detached peritoneum, leading to hyperæmia of the contiguous serous covering of the intestines, which resulted in paralysis of the gut, with consequent tympanites. There may have been an attempt at the formation of adhesions; because, when the patient's bowels were moved on the fifth day, by a saline cathartic, she said that "something seemed to give way."

DR. SANDS asked if the symptoms might not have been due in part to the pressure of the bandage, which became tightened in consequence of the tympanites. The reporter said that the dressings were quite loose, and that, moreover, there was no change after they had been removed.

DR. GERSTER, in reply to an inquiry, said that all the sutures had held. Four of them were removed on the fifth day, together with the drainage tubes.

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DR. WEIR thought that some of the sutures might have given way. He had noticed that silver wire sutures occasionally gave way soon after the operation, perhaps in consequence of change in the metal.

DR. BRIDDON could not believe that necrosis of the peritoneum had occurred, and been so quickly arrested.

DR. GERSTER explained that the existence of this condition seemed quite probable, in view of the fact that such a large piece of peritoneum had been detached. Dead tissue within the abdominal cavity might be absorbed, provided that it remained aseptic, as was frequently noticed after the removal of pieces of omentum. The nerves of the peritoneum, which were closely related to those of the solar plexus, might be so affected by these aseptic necrotic changes, that serious symptoms might be produced. In reply to a question by Dr. Briddon, he said that this nerve-irritation would have accounted for the symptoms presented in the case under discussion.

DR. STIMSON could hardly see how such a transient necrotic process could exist.

DR. BRIDDON thought that the fluid removed from the cyst presented an appearance different from that usually observed in parovarian cysts.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, April 27, 1887.

H. AUGUSTUS WILSON, M.D., IN THE CHAIR.

DR. H. M. FUSSELL read a paper on

DIAGNOSTIC VALUE OF TUBERCLE BACILLI IN SPUTA.

He said that his personal observations enable him to confirm the conclusions of numerous authorities, that the presence of tubercle bacilli in sputa is diagnostic proof of the presence of tuberculous phthisis. In the examination of his cases he used a modification of Gibbe's method suggested by Prof. William Osler. The sputum was spread as thinly as possible on a clean cover-glass, allowed to dry in the air, and passed quickly two or three times through the flame of a spirit lamp. The cover-glass was then immersed in solution of magenta, manufactured by Beck & Co., and allowed to remain fifteen minutes after first slightly heating. It was then decolorized in alcohol, acidified with hydrochloric acid (four or five drops to a watchglassful of alcohol), and examined under a moderately high power. In this manner the whole proceeding can be done in less than half an hour. If bacilli were not found by the rapid method, however, the glasses were allowed to remain in magenta over night, and then examined as before. The power used at first was Hartnack No. 9 immersion, afterward 7 objective, 4 eyepiece. Lower power may be used, however, by one perfectly familiar with the bacillus. He has used a Zentmeyer one-fifth with A eyepiece.

The sputa from 100 cases of lung disease were examined.

The sputa of 84 cases contained tubercle bacilli. In 79 of these there were evident physical signs of phthisis. In 5 there were few or no physical signs of phthisis. The diagnosis was made by the presence of bacilli in the sputa.

In 16 cases tubercle bacilli were *not* found in the sputa. In 8 of these phthisis was *not* suspected from the physical signs, and no bacilli were found; and in 8 the physical signs led to a suspicion of phthisis, but the absence of tubercle bacilli and the subsequent history proved it to be absent.

It is in these doubtful cases that the presence or absence of tubercle bacilli in the sputa is of such practical value.

DR. WILLIAM OSLER said that the importance of the tubercle bacillus in the sputum as a means of diagnosis is not sufficiently recognized by the profession. The technical skill required is not very great, and the time required with the rapid methods of staining is not more than fifteen to thirty minutes. He had succeeded in demonstrating the bacillus within five minutes of the time that the sputum was put upon the slide. This examination is particularly serviceable in just those cases where the evidences of disease are very slight. Only within the past few weeks there was in the University Hospital a man without any pulmonary signs, who had been failing in health and had slight fever. The condition was attributed to some obscure abdominal disease. Finally a suspicion arose that there might be some trouble with the lung, and the sputa were examined and the bacilli found. The signs of phthisis have since developed. The power required for these examinations need not be, as Dr. Fussell says, very high.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 5, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. NEWTON M. SHAFFER read a paper prepared by himself and Dr. R. W. Lovett, of Boston, on

THE ULTIMATE RESULTS OF THE MECHANICAL TREATMENT OF HIP-JOINT DISEASE; AN ANALYSIS OF FIFTY-ONE CASES OCCURRING IN THE SERVICE OF THE NEW YORK ORTHOPÆDIC DISPENSARY AND HOSPITAL.

All the cases were taken exclusively from dispensary cases; all private patients and all hospital cases being left out of the account. All cases of excision were also eliminated. Having referred to the difficulties met with in sucessfully carrying out a course of treatment among dispensary patients in any chronic trouble, he said that these difficulties were especially marked in cases of such affections as hip-joint disease, where the treatment was a matter of years and involved the use of mechanical apparatus. In private practice the results obtained were, of course, much more favorable.

No case was considered which had not been treated exclusively in the service of the Orthopædic Dispensary.

No case was considered which had not been discharged cured; nor which had not been cured at least four years—that is, in which at least four years had elapsed since the patient had been discharged cured; nor which had not been under treatment for at least two years. *All* the cases which came under these exclusive conditions were reported.

The period studied in the investigation was the five years from 1877 to 1882, and during this time there were

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treated at the institution altogether 778 cases of hip-joint disease. Of these 168 cases, or 21 per cent., were discharged cured, 261 discharged relieved, 49 discharged for neglect of orders, and 6 discharged as incurable; while 64, or 6.4 per cent., died. Of the deaths, 20 were due to tubercular meningitis, 5 to amyloid degeneration of the kidneys or other organs, and 3 to phthisis. It was the practice to discharge patients at first experimentally cured; watching the effect of leaving off the apparatus for a time. In some of them it was necessary to apply the splint again for a longer or shorter period before they could be discharged permanently cured.

The plan of treatment adopted in all cases was to apply the long Taylor splint, and instruct the parents or friends in its use. Unless the recumbent posture was required by the special circumstances of the case, the patient was allowed almost unlimited exercise in the open air, and once a week the patient was expected to report at the dispensary.

The aims of the treatment were as follows:

(1) To overcome by mechanical means any existing deformity.

(2) To protect the affected parts from traumatism.

(3) To secure free out-door exercise.

(4) To maintain that position of the limb in which there would be the least amount of deformity in case ankylosis should result.

No operations were performed with the exception of occasionally evacuating an abscess, and little medication was resorted to. Much credit, Dr. Shaffer thought, was due to the capable and energetic assistant surgeons of the institution for their faithful attention to the cases. The long splint used was made without any joint at the knee. He thought that the results would probably have been even better than they were if an intermediate apparatus had been employed, as was usually done in private cases; but on account of the additional expense involved, the institution was unable to provide this.

Of the 51 cases on which the paper was based, 4 were ascertained to have died. 2 of the deaths were due to tubercular meningitis, and the other 2 to acute pneumonia; the latter patients having been in good health up to the time of the attack which carried them off. Of the remaining 47, 6 had relapsed. 1 of these patients remained well two years, 2 three years, 2 four years, and 1 five years; and in 1 of these cases the relapse was due to a fall from a cart. In 1 of the cases excision of the hip had been performed, and the patient was still in bed at the end of a year. In the other 5 the traction treatment had been resumed, and of these 2 were cured a second time, 2 were now nearly well, and 1 was slowly improving.

Passing on to speak of the difference in the length of the two lower extremities, Dr. Shaffer said that the amount of shortening did not seem to depend on the presence or absence of abscesses; although there was a larger proportion of cases of shortening with abscess than of those without. The influence of age on the amount of shortening was quite marked; the greatest amount of shortening occurring in late cases, that is, when the patients were over ten years of age when the trouble commenced. It was a fact worthy of note that the difference in the length of the limbs almost always increased slightly after the case had been discharged cured.

As to the difference in the circumference of the two thighs, in the majority of instances it was between one and two inches; and when the result was the most perfect this was never less than one inch. No relation was observed between the amount of shortening and that of atrophy. The atrophy of the calf of the leg was more marked than that of the thigh in after years. A study of these cases seemed to show beyond a doubt that the muscular growth of the limb received a shock from the occurrence of hip-joint disease from which it never afterward fully recovered. The atrophy might doubtless have been diminished by massage and other appropriate treatment especially directed toward this end; but in dispensary practice this was impracticable, and, consequently, no special efforts of this nature were made.

In nineteen of the cases recovery took place with ankylosis, and three of the patients had perfectly free motion in every direction. The presence or absence of abscess seemed to have little influence on motion. An investigation of these cases showed that the amount of motion, as a rule, grows less instead of greater, as time goes on; and in no case did the motion increase after the discharge of the patient. A careful examination was made in regard to the presence of lateral curvature of the spine, and it was found that in only one out of fifty cases was there anything at all approaching true rotary lateral curvature. In this case, however, the latter condition was not really present. It was found that after cure the limb on the diseased side does not grow as rapidly as the unaffected one, and Dr. Shaffer thought this was no doubt the reason why the difference between the length of the two limbs so often became greater as time went on. In case of ankylosis, adduction, rather than flexion, was the thing to be most avoided.

In conclusion, he stated that these cases showed that, aside from the danger of the operation, conservative methods of treatment gave better results than excision. Excluding the four cases which died and the six which relapsed, there was not a single individual among the patients who was incapacitated for active occupations, and none were affected with tubercular disease or other serious trouble.

DR. LOVETT stated that, as a part of the work included in the present investigation, he had visited and examined these patients at their homes, and he had found that, taken altogether, they were an exceptionally healthy set of people. There were only five who were not in robust health. One of these was a boy, who was the only one of the number who used a crutch or cane; and the other three were young women who, while anæmic and inclined to be delicate, presented no signs of phthisis. There was very few who wore high soles on the affected side; although quite a number had tried this for a time, but eventually found that they could get along better without this device. As had been remarked, adduction was the most unfortunate deformity resulting from hip-joint disease. It made the gait ungainly, gave rise to pain in the back, and rendered the practical shortening of the limb a great deal in excess of the actual bone shortening. Nearly half of all the cases complained of more or less pain in the affected limb during damp weather; but in not a single instance was there the slightest reason to suspect any return of the disease.

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DR. J. F. RIDLON said that by this paper the claim was substantiated that hip-joint cases could be successfully treated in dispensary practice. Having been for six years connected with the institution referred to, three of which were spent in the outdoor department, he was perfectly familiar with the whole matter. So far as he understood Dr. Shaffer's opinion, it was assumed that all the cases were of a tuberculous nature; but personally he believed that many cases which were supposed to be of strumous origin were in reality due to traumatism. He also thought that a considerable proportion were due to inherited syphilis. It, therefore, seemed only right that the causation of the trouble should modify the treatment adopted to a very considerable extent. In traumatic cases where there was more or less dead bone present, he thought it good surgery to cut down and remove it. If such cases were allowed to go on without operation they were very apt to end fatally; while in instances of this kind where even a very large fragment of dead bone was removed he had seen the patients make a perfect recovery. If a diagnosis of inherited syphilis was made, anti-syphilitic remedies should be employed in addition to the usual splint. He had, indeed, seen one or two syphilitic cases get well under anti-syphilitic treatment, without the use of mechanical means at all. He was convinced that many cases which were supposed to be of tuberculous character by orthopædic surgeons were in reality syphilitic, and he knew of one case of this kind which was treated with simply a hip-splint for two years, when a syphilitic eruption appeared. The mother and a younger child were also affected with a similar eruption. As to whether there was any way of deciding whether a case was tuberculous or syphilitic was a matter, he thought, worthy of careful investigation; and it seemed to him advisable to try the effect of internal remedies in addition to mechanical treatment. All were familiar with the difference met with between private and dispensary patients, and the more speedy cures among the former he believed to be largely due to this cause.

DR. SAMUEL KETCH said that he thought Dr. Ridlon was mistaken in the statement that it was assumed at the New York Orthopædic Dipensary that all cases, without exception, were of tubercular origin. It was also a fact that quite a number of cases, in addition to mechanical appliances, were treated with such remedies as iron, cod-liver oil, and hypophosphites. His personal experience with the mechanical apparatus employed, led him to consider that with it we had a most satisfactory method of treating hip-joint disease. Not only were good limbs secured, but also relief from suffering; and many of the cases were saved from the knife.

DR. LOUIS A. SAYRE said that the conclusions of Dr. Shaffer corresponded to a great extent with the views which he had taught for the last thirty years. If proper mechanical treatment were carried out the patient usually recovered. Whether a predisposition to tuberculous, syphilitic, or other dyscrasia were present or not, he had observed that in almost all cases an exciting cause, however trifling, had been required to develop the trouble in the hip-joint; this traumatic influence serving to fix the diseased process at this particular point. If any hereditary taint were present, of course, a very slight injury was required for the development of the disease. With proper mechanical treatment and the use, in appropriate cases, of such measures as blisters, leeches, and the hot iron, a fair result could usually be obtained, and there were scores of his patients in this city and elsewhere, who now had perfect motion of the limb. Many of these he had seen in consultation with such surgeons as Mott, Willard Parker, Van Buren, and Hamilton, and the results were so successful that it would never be suspected that they had ever had hip-joint disease at all.

If we could succeed in arresting the disease, Dr. Sayre went on to say, mechanical treatment was all that would be required. The moment that the apparatus was applied there was instant relief from pain. But, in spite of suitable mechanical means and the internal use of cod-liver oil, bichloride of mercury, or other remedies that seemed to be indicated, there were a certain number of cases which, instead of improving as time went on, only kept growing worse. If, therefore, caries went on increasing, with long-continued suppuration which was liable to result in amyloid degeneration of the kidneys and other organs, then the knife was the proper thing to resort to. Instead of letting a case go on for eight years, as had been done in some of those reported in the paper, with the health becoming all the time more and more broken down, he thought exsection was infinitely preferable. So far as results were concerned, these would be incomparably better than in serious cases of this kind in which it was not resorted to. In this connection Dr. Sayre referred to two patients in whom he had performed exsection, one of whom had afterward become a champion foot-ball player and college athlete, while the other had won a pair of silver skates for his agility in skating. Yet these were cases in which he believed death would have resulted if he had not performed the operation.

For a number of years he said he had only been allowed to do exsections in those who were already condemned to die, so strong was professional opinion against the procedure; and, consequently, his statistics were not as favorable as they would have been if he could have selected his cases. A certain number of cases had been referred to this evening as incurable, but he thought it was a great mistake not to give them the chance which exsection offered. Of the seventy cases in which he had performed the operation, many were of this apparently hopeless character. As regards the condition of the spine in the subjects of hip-joint disease, while there might not be present true rotary lateral curvature, it was undoubtedly true that there was more or less lateral distortion in many of the cases.

DR. V. P. GIBNEY considered the statistics presented in the paper a valuable addition to surgical literature, and particularly as regards the questions of ultimate motion and ultimate atrophy. It would seem from them that the common impression was an erroneous one, that motion increases, and atrophy becomes less and less marked as time goes on. These were very important points, and they would serve to help us in our prognoses. Personally, he had gained increasing confidence in the value of mechanical treatment. With it there were no exacerbations, there was immunity from suffering, and the children grew hearty and robust.

DR. A. B. JUDSON said that the limb would take the position which was the most convenient to the patient. Adduction was particularly undesirable, and he thought

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that patients should be drilled so as to spend as much time as possible with their weight on the affected limb.

DR. L. H. SAYRE said that as long as the patient showed improvement, however slow, mechanical treatment should be persevered in; but, if instead of improving, he steadily lost ground, he believed it was good surgery to remove the dead bone at once. He did not believe, however, in early exsections, and did not think the results thus obtained would at all compare with those of mechanical treatment.

DR. SHAFFER, in closing the discussion, stated that he did not wish to be at all dogmatic in his views in regard to tuberculosis and syphilis. The only way that he could distinguish between the two was by the test of treatment; some cases getting well under antisyphilitic remedies, and some not. In the early stages he did not think that we could make the distinction. It was important to remember that the paper was devoted exclusively to the results of mechanical treatment among dispensary patients, and he thought that these had unquestionably demonstrated the fact that one adequately equipped dispensary could do the work of three or four hospitals among this class of cases, and at a far smaller expense. In regard to medicines, the Orthopædic Dispensary, on account of the large expenditures which it had to make for mechanical appliances, was not able to furnish these. In private practice, however, he was in the habit of using internal remedies wherever they seemed to be indicated.

He did not wish to bring up the question of mechanical treatment *versus* excision. The cases which were spoken of as incurable, were those which were incurable as regards deformity, and not the disease itself. Patients with chronic suppuration and sinuses were not given up at all, but followed up until they died; and in his private practice some of his best results had been in cases of this kind. If he could have the entire control of the child, and the parents would give it the benefit of fresh country air and other needed hygienic conditions, a good result could almost invariably be obtained, provided amyloid degeneration did not occur. In his experience there were fewer deaths and better general results from mechanical treatment, with this special oversight on the part of the surgeon, than from excision. In the patients which had been referred to in the paper as living eight years under treatment, the eight years were not spent in combating sinuses, but in getting the best ultimate position and most serviceable limb. These were mostly cases of dry caries. He was not opposed to excision, but he believed that it should be resorted to only very rarely. In cases of which he had the entire control it was seldom or never necessary.

CORRESPONDENCE.

SULPHURETTED HYDROGEN INHALATIONS.

To the Editor of THE MEDICAL NEWS,

SIR: My attention having been attracted by an article, entitled, "Sulphuretted Hydrogen Inhalations," in your issue of May 7, 1887, in which are described the methods employed at Allevard, France, I respectfully desire to call your attention to the fact that these identical methods have been in operation in Sharon Springs, N. Y., since June, 1884, and are described in Dr. Beverly Robinson's *Nasal Catarrh and Allied Diseases* (second edition, page 141).

During the past three years I have had occasion to use them in my own practice, in many cases of diseases of the respiratory organs, and with gratifying success. As the use of sulphuretted hydrogen is now receiving marked attention from the profession, it seems to me eminently proper that medical journals, while directing special notice to results obtained in foreign lands, should not ignore the employment of the same means in our country, and within easy access of those of their readers who may not be able conveniently to cross the sea.

Respectfully yours,

G. A. WILLIAMS, M.D.,
Resident Physician.

SHARON SPRINGS, N. Y.

NEWS ITEMS.

DIRECT INOCULATION OF TUBERCULOSIS IN ALASKA.—DR. PITCHER relates the following personal observation among the natives of Alaska:

The native population is, and has been for some time, steadily decreasing. It is true that an epidemic of smallpox some years since contributed largely to that end, but not to such an extent that the ravages of consumption were lost sight of. The sudden onset of the more alarming symptoms in the respiratory and circulatory organs may be in a measure explained by the almost universal prevalence entailed in "packing" immense loads upon the back by means of a band passed across the chest horizontally, and attached to bands at either extremity, passing from the load, under the arms, in front of and over the shoulders, back to the load again. This, as a matter of course, renders breathing a difficult feat. The dampness of the climate, lack of good hygienic surroundings, intermarriage with Russians, existence of syphilis and scrofula, may explain the existence of the disease, but not its rapid spread and presence throughout whole families. One would expect to find among a people accustomed to a climate from infancy, taking plenty of out-door exercise, living extensively upon a diet of fats and oils, and remarkably free from gastric disturbances of any type, a certain percentage free from it, but such is not the case; it is the exception, rather than the rule, to find a man, woman, or child free from it. After examining a large number of cases, young and old, it struck me that some unusual agency must be at work, but look where I would, no remarkable explanation could be found, until I chanced to be in a house visiting a patient during the preparation of the evening meal. The klutchman (wife) was assiduously chewing a mass of something, spitting it, when thoroughly moistened, into a spider. Watching more closely, the substance chewed proved to be a sea-weed, prepared in the fall by pressing into square cakes and drying. This she picked to pieces and thrust into her mouth, masticating it as described. The spider at last becoming full a quantity of seal or herring oil was poured over it, a few hot coals stirred in and later warmed slightly over a fire. Of this delicate dish the entire family partook briskly. This klutchman was a consumptive, and the patient (her son) was also suffering from the same complaint.—*Medical Age*, April 25, 1887.

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NEW HYGIENIC MUSEUM IN BERLIN.—A large hygienic museum has recently been opened in Berlin. The rooms on the first floor, of which there are sixteen, contain exhibits relating to fire, building, heating, ventilation, lighting, water-supply, and road and street making. On the second floor are eighteen rooms, in which are shown objects used in civil and military nursing, clothing, baths, education, asylums, prisons, etc.—*Sanitarian*, April, 1887.

NUMBER OF AMERICAN MEDICAL STUDENTS IN VIENNA.—For the year 1886–87 there were ninety-five Americans studying medicine in Vienna.

PRIZES IN THE FRENCH ACADEMY OF MEDICINE.—The Academy offers $2000 (10,000 francs) for the best essay on treatment of urethral stricture, or other diseases of the genito-urinary tract. Meynot has contributed $14,000 for essays in otology and ophthalmology.

A NEW TECHNICALITY.—In view of the great confusion arising from the indiscriminate use of various words and phrases to denote the same operation, Dr. Reeves proposes the single word "*ventrotomy*" to express the operation of opening the abdominal cavity, for whatever purpose. Operations with incisions in various parts of the abdominal walls are designated median, anterior, lateral, and posterior or lumbar ventrotomy. In accurately describing a gastrotomy done through the linea alba, he would say "median gastro-ventrotomy."

A LETTER FROM PASTEUR.—*Science* for April 22, 1887, publishes the following extract from a letter by Pasteur:

Pasteur, who is now sixty-four years old, was, last winter, sent by his physician to Italy for his health, and is only just returning to Paris. Under date of April 1st, in a letter to his friend, Mr. Jules Marcou, of Cambridge, which the latter kindly permits us to use, he writes from Arbois in the Jura, that he hopes to live to welcome the earliest publications of the Institut Pasteur, and adds, "We have just purchased eleven thousand square metres of land, and the subscription has reached the sum of nearly two million francs; it is, however, very insufficient, for, if we spend twelve hundred thousand on land and buildings, the income from the remainder will be much too small. Oh! if only some American millionaire were inspired with an enthusiasm for this work! I hope that when we are incorporated, and this will be soon, we shall be better endowed. We shall then be able to receive legacies. To proceed suitably and with full independence, we should have, according to my estimates, three and a half million francs. I am confident. The future is ours. The prophylactic treatment of rabies continues to do well. Very, very rarely are there failures, and all in cases where exceptional circumstances appear. There has been but one failure since the first of January, and more than five or six hundred cases treated, a multitude having been most severely bitten. If we could only attack diphtheria, phthisis, etc., with success. We are going to attempt it. It is at least a step toward discovery to have confidence, and to hope in the result of obstinate labor."

OBITUARY RECORD.—Died at New York, on Monday afternoon, May 9th, E. DARWIN HUDSON, M.D., aged 43 years.

Dr. Hudson was an earnest worker in the field of medical science, and a frequent contributor to medical literature. He held the professorship of Medicine and Diseases of the Chest in the New York Polyclinic; he was Visiting Physician to Bellevue Hospital; and was one of the original members of the Association of American Physicians.

—— at Philadelphia, on the 9th instant, of typhoid fever, ELLIOTT RICHARDSON, M.D., Lecturer on Clinical and Operative Obstetrics, and Demonstrator of Operative Obstetrics, in the University of Pennsylvania.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 7, 1887.

SHAFER, JOSEPH, *Assistant Surgeon.*—Detached from the "Minnesota" and to the "Ossipee."

SIMON, W. J., *Surgeon.*—Ordered to the U. S. Steamer "Boston."

HENRY, C. P., *Assistant Surgeon.*—Detached from Hospital Philadelphia, and to the "Boston."

MEANS, VICTOR C. B., *Assistant Surgeon.*—Detached from Hospital Mare Island, and to the Hospital New York.

SIMONS, MANLY H., *Passed Assistant Surgeon.*—Detached from Naval Academy and to the "Constellation."

DIEHL, OLIVER, *Passed Assistant Surgeon.*—Detached from Hospital New York, and to the Hospital at Philadelphia.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 3 TO MAY 9, 1887.

FRYER, BLENCOWE E. *Surgeon.*—Ordered for examination by Army Retiring Board at San Francisco, Cal.—*S. O. 101, A. G. O.*, May 2, 1887.

STERNBERG, GEORGE M., *Surgeon.*—Assigned by the President to the special duty under the Treasury Department of "investigating the merits of the method practiced in Mexico and Brazil for preventing yellow fever by inoculation." Relieved from duty as attending surgeon and examiner of recruits in Baltimore, Md.—*S. O. 101, A. G. O.*, May 2, 1887.

MIDDLETON, J. V. D., *Major and Surgeon;* HAPPENSETT, J. C. G., *Major and Surgeon;* AINSWORTH, F. C., *Captain and Assistant Surgeon.*—Appointed to assemble at U. S. Military Academy, West Point, N. Y., on June 1, to examine into the physical qualifications of the members of the graduating class and of the candidates for admission to the Academy.—*S. O. 102, A. G. O.*, May 3, 1887.

LONSIG, LEONARD Y., *Captain and Assistant Surgeon.*—Sick leave of absence still further extended six months, on Surgeon's certificate of disability.—*S. O. 103, A. G. O.*, May 4, 1887.

BIART, VICTOR, *Captain and Assistant Surgeon.*—Sick leave still further extended one year, on Surgeon's certificate of disability.—*S. O. 99, A. G. O.*, April 29, 1887.

EWING, CHAS. B., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Leavenworth, Kansas, to Fort Lewis, Colorado, for temporary duty.—*S. O. 100, A. G. O.*, April 30, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MAY 21, 1887. No. 21.

ORIGINAL ARTICLES.

MEDICO-LEGAL ASPECTS OF CRANIAL AND HEART WOUNDS.[1]

BY D. HAYES AGNEW, M.D.,

PROFESSOR OF SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

Is it possible for an individual, with suicidal intent, and in quick succession, to inflict a perforating shot wound of the head and another of the chest implicating the heart? Or, reversing the proposition, Is it incredible that a person, bent on self-destruction, can, with his own hand, shoot himself in the heart, and in the head? These questions have a medico-legal bearing of no small import, and have been suggested as the subject of the present paper, by a murder committed during the spring of 1886, in the town of Newport, Rhode Island.

A colored man, long a resident of Newport, well known both to the permanent inhabitants of, and to many of the transient visitors to, this place of fashionable resort, was found one morning in his house dead under the breakfast-table, having in his mouth some food unswallowed, and with a bullet wound in his head and another in his chest. A coroner's jury, after holding an inquest, brought in a verdict of suicide, and the body, under this finding, was interred. Some weeks later, through the suggestion, I believe, of one of the local physicians, that it was impossible for the deceased to have inflicted these double wounds with his own hand, both involving vital organs, the authorities ordered the body to be disinterred and the inquest to be reviewed. The autopsy revealed a perforating shot wound of the skull, the pistol ball (22 calibre) having entered the right parietal bone about two inches above and anterior to the ear, making a clean-cut perforation of the skull and lodging in the posterior part of the left half of the cerebrum, having passed from left to right, and from before backward. Another ball had penetrated the thorax at a point three inches to the right of the left nipple, and two inches to the left of the median line. "The ball," as was stated, "was found to have passed through the left ventricle of the heart, entering the base and emerging at the apex." It is probable that the exact point at which the ball entered the chest was not accurately noted, as it would have been an anatomical impossibility for the missile, entering the thorax at the position stated, to have traversed the heart from base to apex, the base of the organ being on a level with the second costal cartilage.

The finding of the coroner's jury, based on the evidence developed by this second examination, was murder by some person or persons unknown. Suspicion now fell upon the son-in-law of the dead man, who lived in the same house with his father-in-law. This colored man, named Dorsey, was a graduate of Lincoln University, and had attended two courses of instruction in the Medical Department of the University of Pennsylvania. He was immediately arrested, imprisoned, and held to answer for the murder. He stoutly denied any participation in, or knowledge of, the crime, and as the young man had, both during his student life at Lincoln University and at the Medical Department of the University of Pennsylvania, borne a remarkably excellent character, and as no possible or sufficient motive, at the time, could be divined for such an act, many of his friends were disposed to regard him as innocent. These convictions were strengthened by the rumor that Burton, the murdered man, was hopelessly embarrassed financially, and had, I understand, on the very morning of his death, a note at maturity, and without the means to cancel it.

At the trial of Dorsey the prisoner, five medical experts were examined on behalf of the prosecution. One witness testified that either wound must have caused nearly instant death; or, if the brain received the first ball, such a degree of unconsciousness would have ensued as to incapacitate the victim for inflicting the second wound.

A second witness declared that the wounds were entirely inconsistent with the idea of suicide. The three remaining witnesses testified that if not more than one minute elapsed between the shots, the case was one of homicide and not suicide. Such were the answers as given to me by the prosecuting attorney in the case.[1] Entertaining a different view from that expressed by the medical experts, Dr. William Hunt, one of the surgeons of the Pennsylvania Hospital, and myself, at the urgent solicitation of the friends of the prisoner, went to Newport on the last day of the trial. We arrived at the place in the night, expecting to go on the stand the following morning, but in the meantime the trial was brought to a sudden termination by the confession of the prisoner's wife, in which both her husband and herself were concerned in the murder; and now the question recurs, Are such wounds as those described entirely inconsistent with the idea of suicide?

If the testimony given by the medical experts in the case just detailed, is to pass unchallenged, then it follows that an innocent person arrested and tried for murder in a case where a shot wound of the head

[1] Read before the American Surgical Association, May 11, 1887.

[1] Since this paper was written I have had the pleasure of meeting one of the medical experts in this trial, Dr. Richardson, of Boston, who informed me that the evidence given by himself and others of his colleagues, as to the wounds being homicidal and not suicidal, was based upon certain facts brought out in the case which rendered the former more probable than the latter.

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and of the heart existed, might be condemned to death, even though the other evidence did not raise the connection of the prisoner with the deed, above a mere probability. In examining this question I shall assume that it is possible for a shot wound of the head and of the heart to be suicidal, and as to precedence of injury, the head or the heart, it is not essential to the case.

First, however, let us consider the subject in the order of a shot wound of the head and of the heart. There are two conditions which would disqualify an individual bent on self-destruction from inflicting the second wound in the chest, namely, the suspension or loss of consciousness and paralysis, partial or complete, of one or both upper extremities. The loss of consciousness, in a given shot wound of the brain, is not due to the mere passage of the missile through cerebral matter; you can thrust a finger, a trocar, or a knife, into portions of the brain, without at all affecting either sensibility or consciousness. It is due generally either to fragments of bone carried before the vulnerating body and buried into the cerebrum, to some large vessel or sinus being opened, causing a profuse hemorrhage, or to transmitted vibrations resulting from the impact of a ball against the skull, thus causing a molecular disturbance of its contents, and momentarily deranging the orderly operation of the intellect. Indeed, I believe that the sudden suspension of consciousness in many of these shot injuries of the head is due more to this contact of the missile with the cranial wall, than to its passage through the brain.

It is common to see a person fall to his knees or prone upon the ground when struck upon the head by a pebble or a fragment of a stone, but in an instant he is again on his feet, the fall does not necessarily imply loss of consciousness, though it does mean an interruption to muscular coördination. Every surgeon can recall instances of the most dreadful injury to the skull and brain without destroying the conscious volitions of the patient.

During the winter of 1885 Dr. William Hunt and myself were called to see a man who had been run over by a street-railway sweeper in the night. He was seen to arise immediately after the accident, and walk to his house on Spruce Street, two squares from the scene of injury. Opening the door with his deadlatch key, he passed up stairs to his room on the second story and went to bed. The family in the morning found him unconscious. On examination portions of the parietal and temporal bones were found driven deeply into the brain.

A prominent physician of Philadelphia was run over by an unmanageable horse, and dashed against the corner of an iron pillar, causing a frightful compound comminuted and depressed fracture of the frontal bone, tearing the membranes of the brain, and injuring its substance. I applied the trephine in two places, and removed twenty-seven fragments of bone, and yet, though unable to stand, neither motility nor consciousness was destroyed, as the patient gave intelligent instructions in reference to being carried to his home.

I recall another case of still more extensive damage to the skull; one in which, by the bursting of a fly-wheel, quite one-half of the frontal bone was carried away, and with it a considerable portion of the prefrontal lobes of the cerebrum. Only for a few moments was the man dazed, and ultimately made a good recovery.

The famous case, occurring in the practice of Dr. Harlow, and figured in some of the books on surgery, is another one in point. A bar of iron having entered the face below the zygoma, passed through the skull, emerging near the vertex, without destroying personal consciousness.

A private,[1] named Solomon, Co. G., New Jersey Volunteers, received a shot-wound at the battle of Bull Run. The ball entered the skull below the tip of the left ear; the man fell, but retained his senses. The surgeon passed a probe two inches into the brain in the supposed track of the ball.

In a letter received recently from Sir William MacCormac, of London, the writer says that he thinks it entirely within the bounds of possibility for an individual, with suicidal intent, to shoot himself in the head and in the heart, or in the heart and afterward in the head, and furnishes the following cases, which render such a statement entirely feasible. The first was that of a suicidal case under the care of Mr. Hulke, where the bullet traversed the head from temple to temple, but did not emerge. The patient lived fourteen days, but did not lose his consciousness until a short time before his death, and was fully able to inflict any other wound had he been so disposed. In a second case, under the care of Dr. Smith, a bullet traversed the skull from temple to temple. The patient not only preserved his consciousness, but finally recovered.

A soldier at the Battle of Pultuska, in Poland, as related by Hennen, received a remarkable wound of the brain. A ball carried away the bayonet of a musket, which entered the right temple of the man, two inches above the orbit, and passing backward and downward, emerged through the maxillary sinus of the left or opposite side. The soldier, aided by his two comrades, tried in vain to withdraw the weapon; the Surgeon-Major, M. Fordeau, made a similar attempt and failed, when at length the task was accomplished by a strong soldier placing the man's head on the ground and his foot upon the head, while traction was made on the missile. The patient ultimately recovered, and as it is distinctly stated that he joined his own efforts with those of his fellow soldiers in their attempts at extraction, it follows that neither consciousness nor motility was lost.

The *second* disqualifying condition for inflicting another wound after one in the head is paralysis.

The very great advance made in the last few years in regard to the functions of the brain and the topographical relations existing between the exterior of the cranium and definite cerebral convolutions, enables us to locate with considerable accuracy intracranial lesions from the symptomatic phenomena which may be present. The local areas or centres of muscular power have, for the most part, been clearly established.

It will, I think, be conceded that so long as the

[1] Surgical History of the War, Part 1.

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middle portion of the ascending frontal and corresponding portion of the ascending parietal convolutions remain uninjured, the power to use the arms is retained, and the same may be affirmed of the lower extremities, so long as the upper end of the ascending parietal convolutions and that part of the posterior parietal lobule immediately behind remain intact. The motor centres are all grouped about the fissure of Rolando, and unless a shot or other missile trenches on these special regions, motility remains; though it may, after a time, be lost by the extension of hemorrhage or from inflammatory products. So common is it to see shot and other wounds of the brain occurring without material impairment of muscular motion, that I do not think anyone will challenge the statement. Indeed, the cases already cited in support of personal consciousness after wounds of the brain, are, most of them, equally pertinent when applied to the maintenance of motility. Nor does the fact that a man falls, or is unable to rise after a perforating shot wound of the skull, prove that the power to use his arms is lost. The missile may damage the leg-centres and not affect the arm-centres.

Let us next change the proposition by changing the order of wounds—the heart wound taking precedence.

The unconsciousness and loss of muscular power which follow wounds of this organ, are due to hemorrhage; the vessels of the brain and other nerve centres being suddenly emptied of their blood, fatal syncope ensues; hence wounds of the heart are generally considered to be instantaneously fatal. Yet there are many, very many, exceptions to the rule. Fischer, in an analysis of 452 cases of wounds of the heart, gives no less than 35 recoveries; 72 were shot wounds with 12 recoveries. Dr. Purple, in his collection of heart wounds, states that in 42, 12 of which were shot wounds, death did not take place immediately.

While it is true these statistics are not altogether free from criticism, yet they possess an intrinsic value in establishing the general statement, that these injuries are not necessarily, or immediately fatal in all instances. The following cases culled from different sources will go to sustain the object most needful for my present purpose. In the *Surgical History of the War*, Part I., pages 530 and 531, there is recorded the case of Private Lanning, Co. A, Pennsylvania Volunteers, who was shot in the chest, the ball entering the right auricle. The patient persisted in sitting up, and walking about his room. He lived for fourteen days.

The same author mentions the case of a private named Wright, Co. C, Fourth Regiment of the Veteran Reserve Corps, shot at Quincy, Ill., and who lived forty-six hours. The ball passed through the lung, the left auricle, the auriculo-ventricular septum, and the left ventricle.

A private, Charles T., 1st Maryland Potomac, Home Brigade, was shot in an affray with the Provost Guard at Frederick. The ball passed through the left ventricle and right auricle. Death did not follow for twelve hours.

In two instances given by Jamain, the patients lived six months after a shot wound of the left ventricle. Ferrus mentions a case in which a man lived twenty days with a skewer through his heart.

Sir William McCormac writes me that Mr. Durham had a case of bayonet wound of the heart in which the patient survived fifty-six hours. The wound implicated both ventricles, the septum, and auricle, and the man walked some yards after receiving the injury.

Dr. Andrews reports a case under the care of Professor Bergman, of Dorpat, where the injured man travelled fifteen miles to Dorpat, and finally recovered.

In the *Lancet* of January, 1879, a case is reported where a man received a perforating shot wound of the left ventricle which did not prove fatal for fifty-four days, the patient having in the mean time returned to his work.

In Rankin's *Abstract of Medical Sciences*, vol. 31, page 165, Mr. Jackson reports a case of a man who received two shot wounds, one of the balls passing through the right ventricle. He lived for three and one-half hours, and was able in the mean time to make a deposition and name his assassin.[1] A case of assassination was tried before a British court in India. A native named Kadir was shot through the heart June 2, 1873, while lying on his cot. It was stated in evidence that the victim, after receiving the fatal wound, recognized and denounced his murderer, a man named Meera Khan. On the strength of this testimony the assassin was found guilty. An appeal was made, and the case carried to another court, and the verdict reversed, on the ground that death must have been instantaneous. Mr. W. Curran, Brigade-Surgeon, in commenting on this case, stated that the decision of the former court was, in his judgment, the more correct, as in his own personal experience shot wounds of the heart were not necessarily immediately fatal.

In the *Lancet* for April 9, 1887, page 725, there is reported the case of a groom, who, while adjusting his master's foot in the stirrup accidentally discharged a pistol which was in the holster of the saddle. The ball entered the chest, on the left side two and a half inches to the right and one-half inch below the nipple, and pierced two chambers of the heart. He survived the injury fifty-two hours.

On May 11, 1812,[2] Mr. Percival was shot by Bellingham in the heart. At the trial Mr. Smith testified that after the firing he saw the murdered man rush hastily through the crowd toward the place where he was standing, looking first in one direction and then in the other, and, after making a few steps more, reeled and fell to the ground.

The tragically affecting case of the Duke de Berri is to the same point. While leaving the theatre in company with the Duchess, he was approached by a man, who, placing his hand on the shoulder of his victim, drew him to his side and plunged a dagger into his chest which pierced the heart through, making a wound of some inches in length. The Duke lived until six o'clock in the morning, in the mean time begging that his assassin might be forgiven, and also speaking words of comfort to the Duchess.

[1] Lancet, April 9, 1887, page 725.
[2] Ibid., April 2, 1887, page 674.

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I may also mention the case of a woman brought into the surgical ward of the Pennsylvania Hospital during my term of service. The left ventricle had been pierced by a butcher's knife. She survived two and three-quarters of an hour, and for at least one-third of that time her mental condition was perfectly clear. Can anyone doubt that in most of the cases cited, these patients, had they been so disposed, could have inflicted a shot wound of the head?

And now, third and last, are there any instances in which a suicide has actually inflicted the two wounds which I have been considering. Dr. Macleod, Professor of Surgery in Glasgow University, Scotland, furnishes me the case of a suicide which came directly under his observation. A student shot himself in a water-closet, the ball entered the head. Finding that he had not accomplished the work of self-destruction, he went to his bedroom along a passage and shot himself in the heart. He lived only a few moments after this last injury. Prof. Macleod entertains no doubt in regard to the feasibility of these double wounds being self-inflicted.

In turning to the records of the Coroner's physician, Dr. Formad, I am able, through the kindness of this efficient and careful officer, to furnish the following cases:

1. A policeman shot himself, first through the head, the ball, entering the right temple, was found lodged in the cranial vault on the opposite side. A second shot was fired into his chest, the bullet cutting the right side of the heart. Death from internal hemorrhage followed in about five minutes. This was done in the presence of witnesses.

2. A boy aged nineteen, inflicted four shot wounds from a revolver on his own person. The first bullet entered the forehead, and after taking a circuitous route, lodged about the middle of the left temporal lobe. A second ball was fired into the chest, and passing through the sternum, cut through the left ventricle of the heart, on a level with the mitral valve. A third shot passed into the abdomen, and the fourth into the neck. Death ensued from pericardial hemorrhage.

3. A grocer was found dead in his room, having locked the door. A pistol was still clutched in each hand; one bullet had passed through the brain, and a second through his heart.

4. A man committed suicide in the Park, one bullet entered the brain, and a second the chest. In all these cases the suicide was not assumed, but proven beyond a reasonable doubt.

From the foregoing facts which are thus hastily thrown together, I think I am at liberty to draw the following conclusions:

First. That it is possible for a ball to enter the brain without destroying consciousness, though it may for a few moments cause some mental confusion.

Second. That a ball may traverse the brain without causing muscular paralysis.

Third. That a suicide may, with his own hands, if so disposed, first shoot himself in the head, and within the lapse of a minute inflict a similar wound on the heart, and that there are a sufficient number of cases on record to establish the feasibility of the self-infliction of the two shots; and

Fourth. That a suicide may first discharge a ball into the chest, wounding the heart, and immediately after send a second ball into the brain.

THE MORTALITY OF PRIMARY LAPAROTOMY IN CASES OF EXTRAUTERINE PREGNANCY; ITS CAUSE, AND THE DIFFICULTIES WHICH LIE IN THE WAY OF REDUCING IT.

BY ROBERT P. HARRIS, A.M., M.D.,
OF PHILADELPHIA.

UNDER the present accepted classification, a laparotomy to be entitled to the term *primary*, in a case of ectopic gestation, must be performed not only while the fœtus is living, but after it shall have reached a viable period of gestation; in other words, when it can be undertaken in the interest of two lives. When the fœtus is dead, it may be a few hours or a few days, the gravity of the operation will be unchanged, but the classification will be; as the laparotomy is then performed in the interest only of the mother, it is to be classified as a *secondary* operation. The period of limit attached to the primary operation, and the functional activity of the placenta, must always render it one of great gravity. But the time for the secondary operation is not limited, except as to when it may commence. It may be performed (but very unwisely) a few hours or days after fœtal death; or it may be postponed for months, or years, until it becomes a matter of necessity for the saving of life. Operations after three months will save a large proportion of mothers; but during the first month are, on the contrary, very largely fatal, the exceptional cases being late in the month, and very slow in recovery.

This is not according to the classification (1860) of Mr. Jonathan Hutchinson, of London,[1] who made the term *primary* to apply to all cases in which there had not yet formed an abscess opening through the abdominal wall; and *secondary*, where such an opening had already formed. In his tabular record,[2] he gave fifteen cases of what he denominated *primary* with six recoveries, but did not introduce one case of what is now regarded as the *true primary* laparotomy, although at the time of writing (1864) his second paper in Holmes's *Surgery*, there had been performed five of these operations, with the saving of three children.

The late Dr. John S. Parry, of Philadelphia, wrote in 1875, a work upon extrauterine pregnancy, in which it is evident that he prepared his table of twenty primary operations with six recoveries, after the classification of Hutchinson. This will account for the fact, as noticed by Litzmann, Lusk, and others, that there was not a primary case, as we understand the term, among the six saved. At the time Dr. Parry published his work there had been eight true primary operations, saving one woman

[1] Medical Times and Gazette, July 21, 1860, page 56.
[2] Holmes's Surgery, 1864, vol. iv. p. 514.

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and four children, the successful one being then of very recent occurrence, and probably unknown to him. It is very evident that our accepted classification has been introduced as a matter of necessity. The operation for the removal of a decomposing fœtus after the spontaneous discharge of an abscess through the abdominal wall is of very ancient date. That of laparotomy for the removal of a dead fœtus where the abdominal wall is sound is of more recent introduction, dating back to the year 1594. What is now regarded as the primary operation was first performed, so far as can be ascertained, in Berlin, in 1813, and has in seventy-four years been executed twenty-five times, with twenty-three deaths, and a loss of thirteen children.

We are especially interested in this operation just now, because Dr. Joseph Price, of Philadelphia, recently performed it in Camden, New Jersey, the child living four hours and the mother fourteen days; the death of the latter resulted from hemorrhage. This operation has been performed only twice in the United States, in all her history, and both of the cases proved fatal. One other operation it is true was performed, in 1870, by Dr. E. Paul Sale, of Aberdeen, Mississippi, but in this case the operation was followed by the Cæsarean section thus complicating the removal of the extrauterine fœtus by an intrauterine one. The woman died of septicæmia, and the children, one at six months, and the other at twelve months, of measles and broncho-pneumonia respectively.

The twenty-five operations upon record were performed by twenty-four operators, only one, Dr. Hildebrandt, of Königsberg (1882), having had two cases. Of the twenty-three women lost, only three lived longer than that under the care of Dr. Price, viz.: Case 2, under Dr. Novara, of Italy, thirty-three days; Case 3, Dr. Matfield, twenty days; and Case 16, Prof. Litzmann, Germany, sixteen days. Seventeen of the women died before the completion of the fourth day, and of this number twelve did not live through the second day, seven of them surviving twenty-four hours or less. Thirteen children perished within fifty hours or less after their extraction. In six of the twenty-five cases, peritonitis existed at the time of the operation, and in three of these rupture of the cyst had taken place. Four other women were regarded as *in extremis* when operated upon.

Causes of death. Hemorrhage is the most frequent, and may occur by itself, or be complicated by the existence of peritonitis, septic infection, or both. Heart-clot is probably a more frequent complication than has been noticed. Twelve women died of hemorrhage, alone, or complicated, as mentioned. Peritonitis alone, or mainly, caused death in four; septicæmia in two; heart-clot in one; and in four death was attributed to collapse, or to shock and exhaustion.

Location of the placenta. In about one case out of six or seven, the placenta will be found implanted upon the abdominal wall. When this is central, and in the line of incision, death soon results. The placenta may also be found in the Douglas cul-de-sac, as was the case in the two operations under Hildebrandt. It may cap over the superior strait, as in the case which recovered under Mr. Jessop, of Leeds (Case 8), in 1875. It may be located over the iliac fossa; be attached to the uterus and its appendages; be implanted over the lumbar vertebræ, or kidneys; be attached to the small intestine, stomach, or liver, and has even been found within the uterine cavity. In all of the locations except the last, there can be no contraction of the placental basis after the fœtus has been removed, and the process of exfoliation must produce more or less hemorrhage. To remove a placenta from its attachment to the viscera during the operation, must be necessarily fatal, and it has not been attempted in this class of cases, so far as known, for forty years.

The primary and secondary operations are performed in exactly the same way, from the taking up of the knife, to the suturing of the abdomen, and the difference of gravity in the two cases is due to the danger to be apprehended when placental separation begins, being infinitely greater in the former, because of the open condition of the placental sinuses. Thus far, the mortality by the primary operation has been at least ninety-two per cent., and will foot up higher than this, when the cases of 1883, 1884, and 1885 come to be reported.

The secondary operation, when performed not earlier than three months after fœtal death, has of late years been one of comparative safety, as there is only a moderate risk of secondary hemorrhage, and septic infection can be largely controlled by abdominal irrigation. Much will depend upon the location of the placenta in determining the final result. This will account for some patients recovering when operated upon only a month after the death of the fœtus, while others have died of hemorrhage after four months delay. The immunity under the secondary operation is due to the changes that take place in the placental circulation after its functional activity ceases.

If the primary operation is ever to be one of diminished risk, it must be made so by one of two methods: 1, the ligation of the vessels that supply the placenta and its removal with the cyst, as was done in Case 20 (1881), by Dr. August Martin, of Berlin; or 2, by an antiseptic treatment of the placenta, to prevent its decomposition and separation. If the placenta is implanted over the iliac fossa, a solid immovable base, this experiment might be tried: tie the cord and cut it off close to the placenta, wash out the cyst cavity with corrosive sublimate water, turn in the cyst opening so as to bring the serous surfaces in contact, and stitch them in apposition by the uninterrupted suture of Apolito or Gély, and finally close the abdominal wound without drainage. In Case 11, under Dr. Gervis, of London, the placenta was thus located, and the operation performed in the usual manner, resulted in death from hemorrhage in fifty-six hours. The antiseptic plan cannot do worse than this, if it should entirely fail to maintain placental vitality and adhesion. This plan can only be tried crucially, in a case where there has been no preceding peritonitis, rupture of cyst, sepsis, or hemorrhage.

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THE POLAR METHOD OF ELECTROTHERAPY IN GYNECOLOGY.[1]

APPLICATION, DOSAGE, AND MEDICATION.

BY GEORGE J. ENGELMANN, M.D.,

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(Continued from page 542.)

III. DOSE AND MEASURE.

For proper *dosage* the following elements are required in

GALVANISM.	FARADISM.
Milliampère intensity of current.	Strength of current by distance between primary and secondary coil.
Time of application, by which quantity of electricity used is determined.	Time of application.
	Number of interruptions.
Square surface of dispersing electrode, for record of density.	Size, shape, and material of electrode.
	Tension and quality of the current as determined by the length and thickness of the wire in the secondary coil.

Other measures by which all details of the application are recorded with precision for scientific research, though not necessary for simple treatment, are the following:

GALVANISM.	FARADISM.
Resistance of the tissues and electrodes in ohms.	Resistance of the tissues and electrodes in ohms.
Density of the current.	
Quantity of electricity used expressed in coulombs.	
Electro-motive force of the elements used in volts. Ampère capacity of the elements used in ampères.	Electro-motive force of the elements used in developing the current and their ampère capacity in ampères.

The galvanic current, thanks to its commercial value, can now be measured and dosed with the utmost precision, and all its practically important characteristics can be more accurately recorded than those of any other medicinal agent. For all practical purposes—I am speaking only of the application of galvanism by the polar method, in gynecological practice—we need only know the *intensity* of the current in milliampères, the *time* of application, and the *site, nature, and size of the electrodes*.

The *resistance* of the tissues in ohms is not practically necessary, as in gynecological practice we know that the resistance varies between 60 and 800, usually between 200 and 300 ohms, and this is more closely indicated by the location of the poles, as the physician who applies electricity judiciously and scientifically should know about what the resistance of certain parts generally is.

The *density* of the current, however important in other methods or in other localities, varies but little in gynecological treatment by the polar method, as it is practically the same in all but the intrapolar applications, as, for instance, to the ovaries. The active pole being always small, either stylet or ball, the effect sought in its immediate vicinity differs but little whether the current is dispersed upon a large or small plate. Still I have named the location and size of the dispersing electrode among the elements necessary for dosage and record; by means of this the density can be calculated, though I have included it, not for this purpose as much as for the convenience of the physician to facilitate repetition.

The practically important elements for record and dosage of faradic currents are the electro-motive force of the generating element, with the distance between the coils, the character of the secondary coil, and the number of interruptions per minute; but this will only be possible with perfect standard instruments, which are not yet made in this country, so that this is as yet impossible, and the utility of this form of electricity is very limited, on account of the imperfect apparatus in the hands of the profession.

The determination of the milliampère intensity of a faradic battery is more than useless, it is deceptive, as the ampère intensity carries no conception of the true force of this kind of electricity, which is produced by induction, and by frequent making and breaking of the current.

If passed through a coil of long wire the milliampère intensity is greatly reduced, and yet the effect of the current is increased. I mention this only to prevent entanglement by the erroneous ideas advanced by some.

Measure and Dosage of Galvanism.

The milliampèremeter. Upon the use of this instrument, absolutely essential to successful practice, the present advance in gynecological electrotherapy is based. The instrument may be either horizontal (tangent) or perpendicular, and for gynecological purposes should indicate from 1 to 250 milliampères. Whilst the neurologist may need one with more exact reading from 1 to 10, enabling him even to distinguish one-half or one-quarter of a milliampère, the gynecologist must have wider scope, and, as a rule, exactness to a single milliampère is not essential; the intensity usually employed is from 10 or 20 to 60 or 80 milliampères; in rectal, urethral, and vesical applications, the want of an instrument plainly showing fractions of a milliampère is sometimes felt, as two or three milliampères only are used, but in general use this is unnecessary.

The high intensities are needed for purposes of electrolysis or cauterization.

Time of application is noted in minutes, and from this the quantity of electricity applied in the entire séance can be determined in coulombs, the unit of quantity.

For ordinary purposes the record of time only is needed. The importance of this element in determining the effect is self-evident.

Density. Square surface of dispersing electrode. This should be recorded to facilitate repetition, and, if desired, to determine the *density* of the current, which is of extreme importance in certain methods of application.

To simplify record, and further an understanding, it is very desirable that practitioners should adopt standard sizes of this important instrument; uni-

[1] Read before the St. Louis Medico-Chirurgical Society.

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formity in size and even in conducting powers of dispersing electrodes is essential, as it is difficult to calculate with ever-varying factors, but if a standard be adopted this difficulty is obviated.

The three sizes I use I would suggest as most convenient for gynecological purposes:

No. 1. 59 square inches surface (6¼ by 9¼ inches) for higher intensities.

No. 2. 28½ square inches surface (4½ by 6¼ inches) for intensities from 20 to 60 milliampères, still applicable to the abdomen without difficulty.

No. 3. 15⅔ square inches (3½ by 4½ inches), easily manipulated and readily slipped under the clothing upon any part of the abdomen, can be used for all milder applications, and even with 40 milliampères if the patient be not too sensitive and the resistance low.

Resistance of the tissues and electrode in ohms. The ohm is the unit of resistance, and is measured by the rheostat. Upon the resistance of the tissue depends the intensity of the current possible and necessary.

The *greater the resistance* the *less the possible working intensity* of the current, but the *greater the electromotive force* and *ampère capacity of the generating battery* required. Hence the possibility of successful application of galvanism in gynecological practice; the resistance offered by the tissues is small, usually 200 or 300 ohms; and under these circumstances the patient can stand 100 or 200 milliampères; in percutaneous applications, as required in neurological practice, the resistance of the tissues is rarely as low as 1000 ohms, often 5000 and 10,000 ohms, and 5 milliampères is then a great intensity requiring strong battery force. In neoplasms and effusions, in which the highest intensities are required, the resistance is sometimes reduced to as low as 40 ohms, and at most it is never above 600 or 800 ohms. The resistance of the moist tissues is very low, and the nearer the electrodes can be approached to each other the less it is, as the amount of tissue is diminished.

The greatest resistance is offered by the dry epidermis, and in gynecological applications this is only to be encountered once, and not in all treatment; then the epidermis on the abdomen is not so thick and hard, and the surface is so located that it can be well saturated. When both poles are intrapelvic the resistance is naturally lessened, and very little ampère capacity of battery is required. The resistance in these applications is also lessened by the approximation of electrodes, the one in the vagina, in the uterine cavity, or in the tissue, comes very near to the other, over it upon the abdomen. Most effective, however, is the succulence of the tissues in reducing resistance, and these tissues, with the exception of the abdominal walls, possess low electrical sensibility. For these reasons the use of effective currents, inapplicable in other parts, is possible in the pelvic viscera. This is best explained by an example: In an electro-cauterization of the endometrium, with one pole, the sound, in the uterine cavity, and the other, the small plate, upon the abdomen, I can use 30 milliampères with but little pain, and may need 6 elements to develop these 30 milliampères through a resistance of 250 ohms. If I place the same small abdominal electrode on the back of the hand, and in place of the uterine sound, at the other pole, a round electrode in the palm of the hand, I will find a resistance of 3500 ohms from palm to back of hand, and I will need 24 of the same elements to obtain 4 milliampères, and these 4 milliampères will cause as much burning as the 30 milliampères through less resistance, and in a more sensitive spot.

For an exact determination of the resistance of the tissues, the resistance of the electrode must be noted. That a knowledge of the resistance of the tissues under treatment is necessary, is evident from the influence of this factor upon the result. For general purposes of gynecological treatment, however, it can be dispensed with, as this resistance varies within known and narrow limits; but for other applications it must be noted, as the variation is very great, and so much depends upon it.

I myself have recorded the resistance in the cases treated, for the sake of study and observation, and believe that this should be done for the purpose of scientific observation, that rules of practice may be developed.

It is to the low resistance and slight degree of electro-sensation that gynecology owes the possibility of successful electrotherapy; 250 milliampères can be applied for electrolysis in a uterine fibroid, because the resistance may not be over 60 milliampères, and this can be accomplished without excessive pain, or the use of great battery force; whilst 250 milliampères sent through the body from hand to hand would cause instantaneous death; and no battery—nothing but a dynamo—sends such a current through a resistance of 15,000 ohms (at which I roughly estimate the tissues from hand to hand).

Density of the current. The greater the density of the current the more intense the effect, and, as we have seen, in gynecological electrotherapy and the polar method, the greatest density is attained, as the effect is derived from the surface of one small pole, and the density of the current in the tissue surrounding this active pole varies but little, whether the dispersing electrode be large or small; hence, as has been stated, for mere working purposes, the record of this factor is of no value in gynecological electrotherapy, however important it is in other applications. The density has been expressed by the milliampère intensity divided by the square electrode surface, $\frac{\text{1 milliampère}}{\text{square surface of electrode}}$. It is an element which can be dispensed with practically in dose and record of gynecological electrotherapy; though of interest for investigations of scientific precision, and application to other parts. It is only in ovarian and similar intrapelvic intrapolar applications that we must take into account this element of density.

Quantity of electricity used. The coulombmeter. The coulomb is the unit of quantity, and is represented by the quantity of gas developed by a current of one ampère in one second of time, or by the amount of water displaced by the gas evolved by a current of one ampère in one second of time; in other words, a coulomb is the quantity that passes

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in one second of time against one ohm of resistance under the electro-motor force of one volt. One coulomb will decompose 92 microgrammes of water, and upon this decomposition the instrument for measurement is based; though not scientifically exact, like the milliampèremeter, it is sufficiently so for practical purposes.

In gynecological practice it is sufficient to calculate the amount of electricity used, which is easily done if the intensity of the current and time of application are known: As one ampère for one second of time equals one coulomb, $\frac{1}{1000}$ of an ampère, or one milliampère, will equal $\frac{1}{1000}$ of one coulomb, in one minute, 60 seconds, will equal $\frac{60}{1000}$ or $\frac{6}{100}$ of a coulomb, and in five minutes, $\frac{30}{100}$ of a coulomb. The current used in an ordinary application, for instance, 20 milliampères for 5 minutes, equals $20 \times \frac{30}{100}$ or 6 coulombs; the same as if a current of 100 milliampères was applied for 1 minute, or of 1 ampère for 6 seconds.

I have made the measurements and calculations in my case records for the sake of observation and comparison, but I do not deem it necessary if milliampère intensity and time of application are given; it is merely one of the methods of measuring the galvanic current in all directions for precise determination. If a milliampèremeter is not at hand, the quantity may be measured by the coulombmeter, and, the time being known, and the resistance, the milliampère intensity may be calculated.

Electromotive force; the voltmeter. This is one of the measures used for determining the initial force of the agent, the power of the battery, or of the cells used in the treatment. One volt, the unit of electro-motive force, is a force sufficient to produce a current of one ampère through one ohm of resistance—that is, about equal to that of one chloride of silver, or of one Daniell, element.

The voltmeter used for measuring the electromotive force is an instrument similar in appearance to the horizontal galvanometer, indicating the force in degrees of deflection of a needle, which is impelled by the current passing through a coil of high resistance underneath the pointer. This instrument is of service in determining the value of a battery for galvano-caustic purposes, and for recording the force of the elements used, but is superfluous in galvano-therapeutics for all but exact scientific work; it is not necessary for determining or recording the electric dose, but serves rather to define the status of the battery and of the elements used in the treatment; it tells us whether they are in perfect working order, whether they are deteriorating, and how they have been influenced by work or exposure.

The ampèremeter is used to determine the ampère capacity of the battery, or of the elements used in a given treatment; by this instrument, which is similar to the tangent galvanometer, the intensity of the current used for galvano-caustic purposes is determined, and it is our best means of recording this. In galvano-therapeutics it is useful for control of the battery and its elements, and by it the ampère capacity of the elements used for a given application, or the initial intensity of the current may be determined. It is, of course, not kept constantly in the circuit, like the milliampèremeter, but is inserted in place of the body and milliampèremeter, after the application has been made, to show the intensity of current as coming direct from the battery. It is of no importance to the practitioner, but cannot be dispensed with for a complete determination of all elements; by the ampèremeter, knowing the milliampère intensity of the current in an application, we can calculate the resistance of tissues and electrodes, and, as by the voltmeter, we can record the condition of the elements before and after a *séance*.

This instrument takes the place of the milliampèremeter in all cases in which no such high resistance, as in medical treatment, is interposed. In gynecological electro-therapy this measure is unnecessary for practical work, as the efficiency of the treatment cannot be determined by the battery-force used, on account of the great resistance interposed, it serves us only for an understanding of the working power of the battery, and of the currents used in treatment, but for electro-cauterization and for mechanical purposes this is the gauge by which the work is measured. The ampèremeter is for the machinist, the electroplater and electro-lighter what the milliampèremeter is to the medical practitioner, who employs but an infinitesimal part of the electric intensity needed by the former.

Faradic Dosage.

The only precise measure applicable to faradic electricity is the electro-motive force and ampère capacity of the generating element, but these affect the therapeutic result too little to be considered in dosage. They are recorded only for scientific purposes.

For purposes of dosage we must as yet content ourselves with a rehearsal of the conditions by which the effects of the faradic current are determined.

Strength of the current is indicated by the distance between primary and secondary coil, as shown by the scale, but until a uniformity of instruments is achieved, this is of value only to the operator himself.

Time of application, of course, determines the effect and should be recorded.

Number of interruptions, which in my instruments, for instance, vary from 50 to 3000 per minute, is an important feature of the application and must be noted as one of the determining factors.

Size, shape, and material of the electrode affect the result greatly, and should be noted.

Tension and quality of the faradic current are perhaps its most important therapeutic factors, as the effect varies greatly with the nature of the secondary coil by which these are produced, hence this must always be noted.

A coil of long and fine wire gives high tension and little quality, whilst a short coil of heavy wire gives greater quality and less tension. By a current of tension the pain of cellulitis will be relieved, but the pain and swelling from a contusion will be aggravated; by a current of quality and low tension

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the pain of a cellulitis would be aggravated, the pain, œdema, and venous distention of a contused surface will be alleviated; the former is used mainly for nerve, the latter for muscular effects.

Resistance of the tissues is of no practical importance, as we have no measure of faradic intensity corresponding to the ohm as the ampère does. It is noted only for experimental purposes and future possibilities.

Nomenclature. I will here again call attention to the nomenclature which I have employed and which I have urged for general adoption, in my first paper, so that the recording of cases may be simplified and a general understanding facilitated.

The method of application is described by the location of the poles, the site of the active pole being named first, that of the indifferent or dispersing pole following.

Thus, in speaking of a *utero-abdominal faradization*, I refer to the application of the faradic current with the active pole in the cavity, and the indifferent pole on the abdomen; by *intrauterine galvanism* I have indicated the bipolar treatment—that is, both poles in the uterine cavity. If the word negative or positive precedes, this always refers to the character of the first named, the active pole, viz., *positive recto-abdominal galvanism* tells us that the active positive pole is in the rectum.

The application of the bare metal pole to a surface with higher intensities of current is termed a cauterization. Thus, a *positive electro-cauterization* of the uterine cavity expresses in a concise form the application of the bare metal electrode, connected with the positive pole, to the uterine cavity, an intensity above 20 milliampères being used, whilst the current is dispersed at the negative pole upon the nearest available surface, the abdomen. When the cauterizing metallic pole is replaced by a non-metallic pole, such as a cotton-wrapped applicator, I term this treatment *positive utero-abdominal galvanism.*

Puncture is the introduction of the needle or stylet, the metallic pole, directly into the tissues with dispersion of the current upon the nearest available surface; a *negative electro-puncture* of a fibroid is the electrolysis by a stylet in connection with the negative pole inserted into the tissues of the fibroid, the current being dispersed upon the abdomen in the positive electrode. If this puncture is made *per vaginam*, we speak of a *negative vaginal electro-puncture.*

Record of dose. I have stated that intensity of current in milliampères, time of application, and square surface of dispersing electrode are necessary for determination of dose; to make this still more exact, I have always added a description of the active pole. An electro cauterization of the uterine cavity I have thus precisely recorded:

—E. C. 20 milliampères, 5 min. Fine probe. II. Plate.

i. e., 20 milliampères were applied for 5 minutes with the fine—Sims's—probe as negative pole in the cavity, and II. plate with a surface of 28⅓ square inches, as the positive dispersing pole, on the abdomen.

This is the therapeutic application and dose fully defined.

In cases recorded for research with scientific precision other data are added; these I have arranged in the following manner:

—E. C. 8 Gonda Leclanchè elements 10⅔ volts, 0.63 ampère. Sims's probe, II. Plate; 20 milliampères, 5 min., 6 coulombs. 600 ohms resistance (tissues 586 ohms, II. Plate, 14 ohms).

This, in addition to the data essentially necessary for dosage, tells us that for this treatment 8 Gonda Leclanchè elements were used, with an electro-motive force of 10⅔ volts, and an ampère capacity of 0.63 ampère; that the quantity of electricity used in the treatment with effect upon the patient was 6 coulombs; that the entire resistance offered these 0.63 ampère of current, which allowed the use of 20 milliampères effectiveiy on the patient, was 600 ohms, which is essentially referable to the tissues, but an examination of the dispersing plate shows that this offered a resistance of 14 ohms, which leaves 586 ohms for the tissues, the resistance of the apparatus and rheophores being trifling.

The dose of a faradic application I have recorded in the following manner:

+V. A. Faradism, 4 min. 6 cm., 1500 I. Fine coil.

Or, in other words, the positive cotton-covered ball electrode in the vagina, the small dispersing plate on the abdomen, used for four minutes, the secondary coil 6 cm. from the primary coil, 1500 interruptions per minute, a current of great tension and little quality, the long coil of fine wire as secondary helix.

When I first advocated attention to measure and dose, being myself deeply impressed with the importance of the principles advocated by Apostoli, many of the ablest practitioners, who had long felt the want of precision as the check to progress, readily accepted the idea, but were unable to procure the necessary instruments—I am speaking of gynecologists; others, especially those who have assumed prominence heretofore in electro-therapeutic science, denied the practicability of such measure, and in the face of my claim for a progressive move and effective doses, urged mild applications. A change is rapidly being effected, the demand for instruments of prcision has created a supply, and whilst but a year ago hardly a milliampèremeter was to be had on this side of the Atlantic, and the galvanoscope was sold as a galvanometer, the market is now being supplied,[1] and the working members of

[1] Milliampèremeters of American make are now offered the profession, but I regret to say that, though I have tested several, I have not as yet found one which is perfectly accurate; some indicate *twice* the proper intensity, ten milliampères when they should indicate five milliampères, some two-thirds of the real strength of the current, etc. Every physician should test his galvanometer or have it tested by an expert electrician.

The most delicate test of the correctness of the instrument is the test of the intensity of the current by the amount of silver (or copper) deposited by it in a given time.

The simplest test, and sufficiently correct for instruments such as are used in medical practice, is by Ohm's law, $I = \frac{E}{R}$. Every physician can thus test his own galvanometer, if he has a rheostat

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the profession are beginning to test the value of galvanism applied with precision and judgment, and those who not many months ago still upheld the theory of mild currents tested on the tongue, and long applied, are beginning to vaunt the effective strong current measured in milliampères. Erb and others have long since urged the importance of dose and measure, but a standard had not been adopted; the weber would not yield to the ampère or the Siemen's unit to the ohm, the instruments were rare and costly, and, above all, those who urged precision and measure did not themselves set the example. In but few instances do we find case histories so recorded that the dose is stated with precision. Apostoli gave us the milliampère intensity, this was a most important step forward, also time of application, and the size of the electrode could be inferred. All the essentials were indicated, though not given for the purpose of thus noting dose; these I have systematized, and I believe that I can say that a correct and serviceable dosage has thus been attained.

If the good results of faradism, applied with scientific precision, were equally appreciated, the profession would also be supplied with effective faradic apparatus; but as yet this is only to be seen in the laboratory, and has not been accessible to the practitioner, hence it cannot be tested, and faradic electricity will slumber on as galvanism has done, until some enterprising mechanic gives a suitable instrument to the profession. With the apparatus now in the market, satisfactory results cannot be accomplished; a regulating interruptor, a sliding scale, and a series of graduated coils are wanted.

(*To be concluded.*)

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and a cell of known electro-motor force and known internal resistance, and if the resistance of his galvanometer be known.

The test is made as follows:

$$I = \frac{E}{R} \text{ or Intensity} = \frac{\text{Electro-motor force}}{\text{Resistance}}.$$

Resistance consists of resistance, or R, of galvanometer plus internal resistance of cell plus a certain rheostat resistance, which must be in a milliampère test, 1000 times E less (galvanometer R + internal cell R). Thus, if I take my Gonda-Leclanché cell

E = 1.3 volts.
R = 2 ohms.
R of my galvanometer = 0.4 ohm.

$$\text{I or one milliampère} = \frac{1.3 \text{ volts.}}{1300 \text{ ohms.}}$$

$$0.001 \text{ m. a.} = \frac{1.3 \text{ volts}}{1300 \text{ ohms}}. \quad 1300 \text{ ohms} = R = R' \text{ of cell} + R'' \text{ of galvanometer} + R''' \text{ of rheostat.}$$

$$0.001 = \frac{1.3}{2 + 0.4 + 1297.6}.$$

In other words, my Gonda cell must show exactly one milliampère on a galvanometer, the R of which is 0.4 ohm, if I insert a rheostat R of 1297.6 ohms. This brings me to the great fault of the American milliampèremeters, also of the Stöhrer instrument, which lies in their unnecessarily great resistance, varying from 90 to 130 ohms; whilst the French, Gaiffe, instruments offer only 0.3 to 0.9 ohm resistance.

To the neurologist, who deals with resistances in the human body of 3000 to 30,000 ohms, this galvanometer R of 90 or 130 ohms is of no import; but to the gynecologist it makes a great difference; in his treatment of the pelvic tissues, which offer a resistance of from 60 to 300, a galvanometer R of 130 is an important factor.

Why waste as much battery force in overcoming the galvanometer R as is needed to overcome the R of the tissues? It is a needless loss of power, and herein lies the great advantage of the Gaiffe galvanometer, which offers an R which can be practically overlooked,—less than one ohm.

MEDICAL PROGRESS.

POISONING BY TYROTOXICON IN CREAM PUFFS.—DR. STANTON, Health Officer of Cincinnati, recently reported to the Cincinnati Medical Society several cases of poisoning by cream puffs. That these were the source of the toxic element was inferred from the fact that all the persons affected had partaken of puffs purchased on the same day at one bakery. All of the cases of poisoning occurred on Saturday or Sunday, April 2 and 3, but they first came to his knowledge on the Wednesday following, when one of the puffs was brought to the health office with a report of three of the cases. That the puff had undergone considerable decomposition, was shown by its sour, offensive odor, but no doubt much of the change had taken place after purchase, but that they were not as fresh as a delicacy composed of milk and eggs should be, might be inferred from the fact that one lady, when putting them upon the table on the evening of the day of purchase, remarked that she thought them stale. However, as all purchased by that family were eaten, they were probably at that time not so much changed as greatly to affect their taste.

So far as he had learned, four families were affected by the puffs from the one bakery. In one family there were five poisoned; in two families three each, and in one family two.

The patients all presented about the same symptoms, differing somewhat in degree, one patient being for a time seriously ill. The symptoms were those of an irritant poison. In most of the cases, in from one to three or four hours after partaking of the puffs, nausea came on, followed soon by vomiting, and later by purging. In some cases these symptoms were persistent. There was in all a sense of burning in the throat, stomach, and bowels, and great thirst. In the severer cases there were headache, and a disinclination to take food for some time.

Believing that the symptoms in the cases here referred to were due to tyrotoxicon poison, he made some chemical analyses according to the methods Prof. Vaughan has followed, and succeeded in isolating needle-shaped crystals which answer the description he has given of tyrotoxicon. He had not at hand the means of applying chemical tests to prove the identity of these crystals with that poison, nor had he time to get them before decomposition of the product rendered this impossible, for, like tyrotoxicon, it was very unstable; but he found by experiment upon himself that the residuum after evaporating the ethereal extract produced a sense of burning in the mouth and stomach, and nausea, such as are produced by tyrotoxicon. A larger amount would, no doubt, have produced vomiting and purging. The microscopic appearance, the unstable nature of the crystals, and the effects, convinced him that the poisoning in the cases here referred to was due to tyrotoxicon.

The method followed in testing the cream puffs was that recommended by Prof. Vaughan. A portion of the custard from one of the puffs was mixed with water. It was intensely acid. Potassium hydrate was added in sufficient amount to render the mixture slightly alkaline. An equal amount of ether was added, which, after separation, was removed by a medicine dropper. This was allowed to evaporate, and the residue dissolved in dis-

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tilled water. This aqueous solution was again agitated with ether, and after separation the ethereal solution was dropped upon a microscope slide, and allowed to evaporate, the tyrotoxicon crystalizing in long, needle-shaped crystals. There were also visible on the slide some crystals of cholesterine, some phosphates, and other crystals, which were probably salts of potassium with some acid of decomposition soluble in both water and ether.—*Lancet-Clinic*, April 23, 1887.

TREATMENT OF LACHRYMAL TUMOR.—GRANDMONT treated a tumor of the puncta lachrymalis, with occlusion of the duct, as follows:

In the beginning he bathed the puncta in the following fluid:

Chloral. hydrat.,	
Sodii salicylat.	āā gr. 8.
Aquæ	ʒ 5.

He then dilated the duct with a sound.

If an abscess formed it was opened, and bichloride of mercury, in solution, was used as an antiseptic.—*Les Nouveaux Remèdes*, April 24, 1887.

THERAPEUTIC USES OF PYRIDINE.—DR. DANDIEU, of Paris, has recently published a monograph on the use of pyridine and other allied bases (collidine, etc.) in which he states the following conclusions, supporting those already reached by Prof. Germain Sée:

1. Pyridine is indicated in attacks of angina pectoris. Its action is prompt. Its use prevents fresh attacks.

2. In asthma, whether of nervous, emphysematous, or catarrhal origin, inhalations of pyridine are to be preferred to subcutaneous injections of morphine; their effect is more lasting, and is unattended with danger. It is not only palliative, but truly curative.

3. In asthmatic attacks resulting from the inhalations of irritating gases, it is also an efficient agent.

4. In the dyspnœa of phthisis, and in that from affections of the larynx, its action is prompt.

Prof. Sée employs pyridine in the following manner: The patient is placed in a small room, about nine feet square. The pyridine, a teaspoonful, is simply poured on a plate, and set on a table in the room, where it evaporates spontaneously, impregnating the air with its vapor. In urgent cases, the pyridine may be inhaled directly, four or five drops of it being placed on a handkerchief and held before the patient's face.—*American Lancet*, May, 1887.

FORMULÆ FOR THE HYPODERMATIC USE OF NEW REMEDIES.—The following are from *A Manual of Hypodermatic Injections*, by BOURNEVILLE and BRICON:

1. Acid. chrysophanic . . .	gr. $\frac{1}{12}$ to $\frac{1}{6}$.
Aquæ destillat.	♏ 15.

Employed successfully in eczema, lichen, prurigo, psoriasis, and urticaria.

2. Acid. osmic.	gr. 1½.
Aquæ destillat.	ʒ 2½.

For interstitial injections in the treatment of tumors; in the treatment of obstinate neuralgia (Billroth, Neuber), from 8 to 15 minims of the solution may be injected in the vicinity of the affected nerve.

3. Agaricin.	gr. ¼.
Alcohol. absolut. . . .	♏ 70.
Glycerinæ	♏ 85.

The contents of an ordinary hypodermatic syringe, 20 to 30 minims, may be given for the night sweats of phthisis.

4. Antipyrin. hydrochlorat. . .	gr. 15.
Aquæ destillat.	♏ 15.

Solution should be aided by heat. Huchard has used the drug with benefit as an antipyretic.

5. Cotoin pur.	gr. 15.
Ether. acetic.	ʒ 1.

The contents of a hypodermatic syringe may be injected and repeated in fifteen or twenty minutes, or every hour, for obstinate diarrhœa, intestinal ulceration, in cirrhosis, and alcoholism. May be used in cholera, night sweats.

6. Kairin. hydrochlorat. . .	gr. 1½.
Aquæ destillat.	♏ 15.

A powerful antithermic; antipyrine is preferable.

7. Alcoholic solution trinitrin, 1 to 100	gtt. 30.
Aquæ destillat. (lauro-cerasi) .	ʒ 2 6♏, to ʒ 2½.

This should be injected into the muscles of the back or nates. To be given in angina or cerebral anæmia.

8. Paraldehyde,	
Aquæ lauro-cerasi . . .	āā ♏ 75.
Aquæ destillat.	ʒ 3¼.

The syringe should be plunged into warm water before giving the injection, to heat the fluid moderately. Paraldehyde is hypnotic and sedative.

9. Pereirin. hydrochlorat. . .	grs. 15 to 30.
Aquæ destillat.	ʒ 5.

Dose from 1½ to 6 minims in intermittent fever.

10. Thallin. sulphat. . . .	grs. 15.
Aquæ destillat. . . .	♏ 75.

The solution should always be warmed. One and a half grains of thallin, given hypodermatically, are sufficient to produce a fall of temperature of $2\frac{1}{10}°$ to $3\frac{1}{10}°$ in from six to nine hours.—*Journal de Médecine*, April 3, 1887.

IRRIGATION OF THE KNEE-JOINT.—DR. CULVER reports in the *New York Medical Journal* of May 7, 1887, a case successfully treated, as follows:

The outer side of the knee at the place selected for puncture was injected with a four per cent. solution of cocaine into the skin itself, taking care that it did not get into the subcutaneous tissue; the joint and surrounding parts were scrubbed with a nail-brush, using the bichloride of mercury soap and a solution of the bichloride (1 to 1000), and we were then ready for the operation.

We had provided a fountain syringe with a metal nozzle, and a large-sized trocar and canula, the nozzle made to fit into the latter, all the steel instruments having been boiled in a carbolic solution, and everything else thoroughly antiseptically cleansed, also 1000 grammes of a 1 to 30 solution of carbolic acid made from distilled water, carefully filtered and warmed to 80° F.

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The technique of the operation is to plunge the trocar into the lower and most distended portion of the synovial pouch, the assistant meanwhile making careful pressure over the whole joint with both hands, so that the serous fluid may first flow nearly out, and then the joint is to be carefully distended with the irrigating fluid, and by pressure gently emptied, and this is to be repeated until the fluid comes out clear, using from 450 to 1000 grammes (1 to 3 pints) of the irrigating fluid.

OVER-DISTENTION OF THE RIGHT VENTRICLE RELIEVED BY LEECHES.—DR. F. C. SHATTUCK, of Boston, reports, among others, the following interesting case:

M., aged eleven years, entered the House of the Good Samaritan, May 17, 1886, for mitral disease, the result of rheumatic endocarditis the previous winter. September 10th she was sent to the Convalescent Home connected with the institution, and stayed till November 20th, when she came back. Under absolute rest, careful feeding, and digitalis, she improved for a time, but grew worse again.

January 31, 1887. She was vomiting everything she took; there was marked cyanosis, and some ascites, anasarca, and hydrothorax; the jugulars and the liver were pulsating distinctively; the pulse was 129–130; the daily amount of urine had fallen to ℥2–3. Six leeches were ordered over the liver, and, with the subsequent bleeding, the amount of blood lost was estimated at ℥8. Immediate relief followed; the vomiting ceased, she had a good night, the next day the venous pulsation was scarcely to be seen, and she ate a good breakfast with relish. The amount of urine rose to 10 ounces on February 1st, to 9 ounces on February 2d, 10½ ounces on February 3d, 123 ounces on February 4th, 60 ounces on February 5th.

The pulse fell on the 3d to 90. It is only fair to state that on the 2d, she was ordered tincture of strophanthus ♏ij. t. i. d. I do not doubt that this drug contributed to the diuresis and continued improvement, but from my experience with other cases I am persuaded that without the previous leeching it would have been useless. Since then I have pushed the strophanthus up to ♏vi, t. i. d., the pulse remaining at 108 all the time. There was an interval of a fortnight between the time the strophanthus was omitted and resumed.

The child is now up and dressed all day, and is steadily improving in weight and strength. I believe that her life was saved by the leeches.—*Boston Medical and Surgical Journal*, April 28, 1887.

CREASOTE IN PULMONARY TUBERCULOSIS.—FRÄNTZEL prescribes creasote as follows in the treatment of phthisis:

℞.—Creasote . . . . . ℈ 10.
Tinct. gentian . . . . . ℥ 7½.
Spts. vini rect. . . . . ℥ 7¾.
Vini verici . . . . . ad ℥ 2.—M.
Sig.—Daily two or three tablespoonfuls—after meals.

This treatment is best suited for cases of beginning phthisis, in which the progress of the disease is slow.

The treatment may be long continued. The results are a general improvement in the condition of the patients. The bacilli are not affected. Inhalations of creasote are useless (Koch and Gaffky).—*Berliner klinische Wochenschrift*, April 25, 1887.

INOCULATION FOR YELLOW FEVER.—DR. BUSTAMENTE, of Cucuta, South America, is quoted as follows by the *Boston Medical and Surgical Journal* of April 28, 1887:

"Dr. Urricoechea, surgeon of the frontier battalion, inoculated, by way of experiment, and with good results, five of his soldiers. Twenty minutes after the operation the temperature gradually ascended to 40° C., accompanied with all the symptoms of yellow fever. This lasted forty hours, at the expiration of which the fever and all attendant symptoms had disappeared. This operation was effected in a place called Moras, three leagues from Cucuta, and where a body of troops is stationed, who have not come to the city for fear of the fever. At present, the inoculated soldiers are here, exposed to the action of the focus of infection. As in Moras, no case of the epidemic has as yet presented itself." Dr. Bustamente, in his letter, says, "as yet my labors in the field of inoculation as a preventive of yellow fever are only, it may be said, mere experiments, which, although they may satisfy me with a well-founded hope of successful and complete result, cannot be of genuine utility until the best and most efficacious method is decided upon. I am thinking, however, of making an abstract of my observations, together with the method pursued, the results obtained, and everything that may be useful in the premises. For the present, I will confine myself to the statement that, in more than forty persons whom I have inoculated, a fever, with many of the characteristic symptoms of yellow fever, has presented itself; this fever, developed by inoculation, varying several tenths of a degree, and, in some cases, ascending to 41° C., but never presenting the most grave symptoms of yellow fever. The result of my observations permit me to state positively that the fever produced by inoculation is attended with no danger; and it is safe to inoculate, as I have already done, from children of two years to the oldest individuals. Many of the persons inoculated have come to this city, and in no case has the yellow fever attacked them, which gives me hope of a final result completely satisfactory. The municipality, assisted by the merchants, sent to Mexico, January 10th, a commission composed of two physicians, in order to study the inoculation of the fever."

TERPINE AS A DIURETIC.—LEPINE prescribes as follows:

℞.—Terpinal,
Sodii benzoate . . . . . āā gr. 15.
Sacchar. alba. . . . . q. s.
Ft. pil. 10 in num.
Sig.—From five to ten pills daily.—*Journal de Médecine*, April 10, 1887.

ICE POULTICE.—Spread a layer of linseed meal, three-fourths of an inch deep, on a cloth of proper size, and put pieces of ice the size of a marble on the meal at intervals of an inch; then sprinkle lightly with the meal; cover with a cloth, and turn over the edges; apply to the thick surface to the skin. The meal protects the skin and excludes the air from the ice, thus preventing melting.—*Technics*.

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HÆMATEMESIS IN TYPHOID FEVER.

IN no disease does the unexpected happen more frequently than in typhoid fever, and, therefore, every possible complication, no matter how rare, must be borne in mind as something that may, at any moment, assume a primary importance. Hæmatemesis in the course of typhoid fever from ordinary causes, such as simple or malignant ulceration and cirrhosis of the liver, is a very rare event, but decidedly more common than that occasioned by the specific typhoid deposit in the gastric mucous membrane. A few cases of this latter sort have been reported, in one of which, that of Millard, the diagnosis was confirmed by the necropsy. On the anterior wall of the stomach, near the pyloric end and a little below the lesser curvature, was an oval ulcer one inch and a half long by three-quarters of an inch wide, with an irregular border, extending in depth to the serosa. Directly opposite, on the posterior wall, were two small superficial ulcerations.

In 1834 Chomel referred a hæmatemesis in a case of typhoid fever to a specific typhoid ulceration of the stomach, and Murchison, quoting this case, admits the explanation.

The most recent contribution to this subject is by WEISS, of Prague, who, in the *Wiener medizinische Presse*, Nos. 13 and 14, 1887, reports the case of a soldier, aged twenty-two, who succumbed to profuse gastric hemorrhage at about the beginning of the third week. This was preceded by intestinal hemorrhage. In the absence of a post-mortem examination the diagnosis was based on the following facts. At the time of the attack of fever the patient was in excellent health, and had never suffered from any symptoms of gastric disturbance. He was not a drinker, had never had syphilis, and the heart and lungs were sound. There were no petechiæ in the skin and there had been no epistaxis, and, finally, a careful inspection of the naso-pharyngeal cavity revealed no lesion whatever. The source of the fatal hemorrhage was, therefore, the duodenum, the lower portion of the œsophagus, or the stomach, and its cause, considering the previous physical condition of the subject, was presumably typhoid ulceration.

Numerous authorities are quoted by Weiss to prove that typhoid processes in the stomach and its immediate neighborhood are more common than is generally supposed, and that symptoms usually regarded as functional, are often due to structural changes. Louis and Jenner have observed typhoid ulcers in the lower portion of the œsophagus. Röderer and Wagner have described an œsophagitis follicularis as common in an epidemic in Göttingen, and Eichhorst and Reimer have observed similar changes.

Rokitansky has noticed infiltration and even necrosis of the so-called lenticular glands of the stomach, and Chauffard and Cornil have described an infiltration of the mucosa and submucosa with lymphoid cells which may proceed to the formation of miliary abscesses.

A particularly interesting case of abnormal localization of the typhoid process, is described by Chiari. The stomach, duodenum, and upper part of the jejunum were the seat of swelling, hyperæmia, hemorrhage, and superficial necrosis, while scarcely any abnormal change could be demonstrated in the ileum. Prof. Chiari states that he has not seldom observed typhoid changes in the stomach, and there can be no doubt that typhoid processes in the stomach and its neighborhood would be frequently found if carefully sought for. But such a search is decidedly exceptional, since there is a general belief that all claims to represent typhoid fever have been long since preëmpted by the ileum.

Diagnostic indications of this process in the stomach are cardialgia, sometimes intense, vomiting, tenderness in the epigastrium, and pain in the same region elicited by pressure over the cervical sympathetic. This last symptom was well marked in the case reported by Weiss. Eichhorst observed in the Zürich epidemic that a rise in temperature preceded the occurrence of intestinal hemorrhage; and in analogy with this Weiss reports that in his case the temperature rose to 105° F. immediately before the vomiting of blood.

The treatment of this form of hæmatemesis is the same as that of gastric hemorrhage from other causes, and includes the administration of ice pills and styptics, of which one of the best is alum whey. It is certainly reasonable to suppose that the efficacy of such remedies administered *per os* will be in

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proportion to the vicinity of the bleeding surface, and that, in consequence, greater success will attend their exhibition in gastric than in intestinal hemorrhage. Ergotine hypodermatically and cold compresses to the abdomen are important therapeutic measures, although the latter may be contraindicated, as they were in the case reported by Weiss, by excessive epigastric tenderness.

The communication of Weiss proves that the pathology of typhoid fever is a subject by no means exhausted, although undoubtedly hackneyed from continued reiteration of well-known facts. It should stimulate observers to a more careful study of the upper sections of the digestive tract, not only when the lesions in the ileum are slightly manifest or absent, but as a matter of routine in every case of typhoid fever.

THE INDUCTION OF LABOR BY ELECTRICITY.

THE report of seven cases by BRÜHL in the *Archiv für Gynäkologie*, B. xxx. H. 1, confirms and emphasizes the unfavorable opinion we had occasion to express some time ago in regard to the employment of electricity to induce premature labor. In each case the application of a galvanic current for a number of days successively resulted in uniform failure. Nothing more was accomplished than the dilatation of the os to the size of a dollar; so that, in order to stimulate the uterine muscle to sufficiently energetic action to complete the labor, other means had to be employed.

Not only was the galvanic current insufficient, but it was also decidedly deleterious in its action. In one case, the skin over the fundus uteri was injured by the anode, while in two cases there was a purulent vagitinis as the result of the application of the cathode to the cervix, although careful antiseptic precautions were observed.

The prolonged application of the electricity, moreover, deadened the sensibility of the uterus in a remarkable manner, so that when it became necessary to resort to more powerful stimuli, they met with but a sluggish response. But still more serious was the fœtal mortality, for, of the seven children, five were stillborn, three from prolapse of the umbilical cord, due to the lively movements of the fœtus excited by the electrical current.

Electricity by no means answers the description of the best agent for inducing labor, one that will with certainty cause the expulsion of the fœtus within a reasonable time without danger to the mother or child; but in view of the fact that it will dilate the cervical canal up to a certain point, it might possibly be used, as suggested by Lusk, as a substitute for tents. On the whole, however, we are disposed to echo Dr. Brühl's conclusion that he cannot recommend it.

THE COMPARATIVE ACTION OF ANTIPYRIN AND ANTIFEBRIN.

ALTHOUGH antifebrin has but just come into use as compared with its fellow, antipyrin, little doubt exists that it is preferable to the latter. Aside from the results obtained by comparative tests at the bedside, more particularly by EISENHART, as reported in *Münchener med. Wochenschrift*, 1886, No. 47, and by CAHN and HEPP in *Berlin. med. Wochenschrift*, 1887, Nos. 1 and 2, the general profession has not reported as many untoward effects from its use as from antipyrin, while its cheapness, small dosage, and reliability have already given it a place of high esteem among clinicians.

Both Eisenhart and the French observers reach the conclusion that five grains of antifebrin are equal to twenty of antipyrin, and although this is somewhat below the estimate made by the profession in America, it so nearly approaches the results obtained here that the matter may be considered as settled.

It will be remembered that the chief objection to antipyrin was that it was capable of causing profound collapse, as well as other minor, but scarcely less alarming, symptoms, and it should not be forgotten that antifebrin may produce the same result, if given in large doses in susceptible cases.

Many observers have noted the appearance of an exanthematous rash under its use, and HEINZELMANN, in the *Münchener med. Wochenschrift*, 1887, No. 3, reports cases in which deafness and mydriasis occurred. These instances of untoward effects produced by antifebrin are fortunately sufficiently scattered to permit us to use the drug with great freedom. Indeed, the only manner in which the two drugs act identically, other than as antipyretics, appears to be the profuse sweat which they produce about the time of their absorption into the circulation.

Sudden cardiac failure has been produced by both drugs, and in a single case of pneumonia in which antifebrin was administered, which has come to our knowledge, the patient, apparently convalescing, while sitting up in bed talking to a friend suddenly dropped back dead on the pillow. It is but just, however, to state that the patient had been a sufferer for many years from disease of the mitral valve, and as no post-mortem was allowed, the exact cause of death cannot be stated; although the attending physician, a man of good judgment, ascribed it to the drug, with sufficient reason in his own mind to prevent his using it but carefully a second time.

The experience of the profession in this city has certainly engendered the belief that in a very large proportion of cases the newer antipyretic may be used with advantage in place of antipyrin, and unless some as yet undetected evil influence exerted by it is discovered, it will, without doubt, remain

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one of our chief aids in the reduction of abnormally high temperatures.

MORTALITY OF FOUNDLINGS.

FROM some inquiries recently made at the Philadelphia Hospital we learned that of sixty-six foundlings received during four years into that institution, thirty-five died within the first year. It is true, some of these deaths were caused by measles, but the great majority of these infants perished from what, though commonly known as marasmus, really means starvation. Now the secret of this starvation was not an inadequate supply, or absolutely unsuitable character of food, or failure to give it at proper intervals, but too much was given.

The most frequent mistake in the artificial nourishment of newborn infants is giving them the quantity of food which the infant at six months, for example, requires; disorder of the digestive organs quickly follows this constant overloading the stomach, the child soon loses its plumpness, then becomes rapidly emaciated, gastric catarrh and diarrhœa set in, and the poor creature dies starved to death by over-feeding. The proper remedy, the true way to prevent this evil in public institutions, and often in private practice, is to have nursing-bottles which will hold only the quantity of food needed; for example, instead of using a bottle which holds four to six ounces, as that generally used does, employ one which will hold only two ounces, for an infant during at least the first two months of its life. We believe, if this rule be observed, the mortality of hand-fed infants would be materially lessened.

THE relation between managers and the medical staff of hospitals is, as a rule, on a very unsatisfactory basis, and the recent action of the Managers of the Pennsylvania Hospital in dropping suddenly, without a hearing, and without known cause, one of the surgeons to that institution, has aroused considerable and just indignation among the profession in this city.

Managers occasionally appear, as in the present case, to regard the medical staff as their servants, and to be subject to dismissal at their pleasure. It is true that the staff are the appointees of the managers, but as they contribute their professional services without pay, and as these services are the essential object for which the charity exists, the staff have a just right to consider themselves contributors to the institution fully equal in import to those who give money for the support of the patients while under professional care; and they should receive from managers that consideration to which their position as coördinate dispensers of the charity equitably entitles them.

The recent case appears, in all its phases, as a most flagrant act of injustice to a faithful medical officer, and to place a stigma upon his professional reputation which is ineffaceable and unwarrantable. That the vacancy has been filled is greatly to be regretted, as, apart from its ethical aspect, upon which much could be said, it tends to imperil the position and reputation of every hospital physician and surgeon in the land.

THE numerous mental scientists, faith healers, and the like, which have recently sprung up in Chicago, are greatly disturbed over a bill now pending in the Illinois Legislature, which, if it becomes a law, will hamper their operations. The bill was prepared by the State Board of Health. Under the regular State law certain qualifications, such as a diploma from a recognized school of medicine, are required from every person who practises medicine within the State, but a person who has not been graduated from a recognized medical school may get a license by passing an examination that will be satisfactory to the Board of Health. The proposed new act contains this clause:

"Any citizen shall be regarded as practising medicine, within the meaning of this Act, who shall treat, operate on, or prescribe for, the sick or afflicted."

It is furthermore provided, that a fee of $25 shall be paid for the examination of non-graduates, and that itinerant vendors of anything intended for the treatment of disease, or who, in any way, profess to heal disease by any drug, nostrum, manipulation, or other expedient, shall pay a license of $100 a month to the Board.

If this bill becomes a law, the large number of irregulars in Chicago, who profess to cure the body by magnetic healing, Christian or mental science, or by any means of a spiritualistic or metaphysical character—whether natural or supernatural—must pass a satisfactory examination before being allowed to practise.

WITH its issue of May 7th *The Medical and Surgical Reporter* passed under the control of Drs. Randolph and Dulles as editors and publishers. Its new managers, who, however, are not new to medical journalism, are well equipped for the task which they have undertaken, and the interests which have been confided to their hands will be ably maintained and promoted.

Dr. D. G. Brinton states that it is not his intention to retire from the arena of medical journalism, and that he hopes in the early autumn to announce his connection with a journal which will fully meet the legitimate demands of the medical public of the day.

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THE second annual meeting of the Association of American Physicians will be held in the Army Medical Museum building at Washington, on Thursday and Friday, June 2d and 3d, under the presidency of Dr. S. Weir Mitchell. The programme, which appears in another column, embraces the titles of a number of interesting papers.

THE American Laryngological Association will hold its Ninth Congress in New York, Thursday, Friday, and Saturday of next week, under the presidency of Dr. E. Fletcher Ingalls, of Chicago. The programme, which appears in another column, gives promise of an unusually attractive and instructive meeting. The profession is cordially invited by the Association to attend its sessions.

THE Annual Commencement of the College of Physicians and Surgeons of New York was held at Steinway Hall on May 12th, and the degree of M.D. was conferred on 106 graduates. The Cartwright Alumni prize of $500 for the best medical essay, open to universal competition was awarded to Dr. B. Farquhar Curtis, of New York, for his monograph on "Injuries to the Abdomen and Rupture of the Intestines."

SOCIETY PROCEEDINGS.

AMERICAN SURGIGAL ASSOCIATION.

Annual Meeting, Washington, D. C., May 11, 12, and 13, 1887.

(Specially reported for THE MEDICAL NEWS.)

WEDNESDAY, MAY 11TH, FIRST DAY.

MORNING SESSION.

The Association was called to order by THE PRESIDENT, DR. HUNTER MCGUIRE, of Richmond, at 11 A. M. On motion roll call was dispensed with, and the President delivered the *Annual Address* on

THE NEED AND VALUE OF COÖPERATIVE WORK IN SURGERY.

That "in union there is strength" is a proverb recognized and accepted by all men. Nearly every advance is secured by coöperative effort. Every department of life is full of illustrations of the power of association in the accomplishment of great purposes, while the examples are almost as numerous of the failure of individuals to attain those ends because they work unaided and alone. A number of historical examples were cited to demonstrate what has actually been accomplished by united effort, and such, the speaker added, are the successes and triumphs which await us, if we too appreciate its value, and avail ourselves of its potent influence. If the celebrated aphorism of Pliny be true, that "to live is to observe," it is evident that the more observers there are in the field, all having their investigations directed to one end, the richer must be the discoveries which make professional life, in the largest sense of the word, worth living.

Advance in surgery can be more surely made by Associations such as ours, than by any individual effort. The life of one man is too short, and his field of labor too narrow, for him alone to hope to settle many of the vexed problems in our science. The day has passed when the dictum of one man, however exalted, is received without question. The desire now is to know what the mass of thinking men in our profession believe, preach, and practise. Few discoveries of value have been obtained by the observations of one man, although they may at the first glance thus appear.

The difficulties which beset us are many, and at first sight almost insuperable. Disease presents problems difficult to determine. We cannot apply to the human machine the fixed rules by which inanimate bodies are governed. The result of the work of the surgeon in private houses and in public hospitals must be different. The result obtained by the military surgeon is something different from the work of the surgeon in time of peace. The subtle influence of social and moral condition, of climate, season, individual and race peculiarity, the surroundings of the patient, have all to be considered in settling many questions, and determining the value of many contributions.

But we cannot as surgeons alone hope to determine many of the questions which must arise in our calling. We need and must accept the help of the biologist, the patient disclosures of the pathologist, the work of the chemist, and that of every known science and art. For the developments awaiting us we must be indebted to the contributions which every patient and conscientious laborer may bring to the common stock of ascertained knowledge, and we will accomplish this best by the cultivation of a broad and generous appreciation of each other's work.

In conclusion, the President made a few suggestions for the improvement of the Association.

DR. GROSS asked that a committee be appointed to consider the suggestions contained in the address of the President. Drs. Gross, C. H. Mastin, D. W. Yandell, Moses Gunn, and C. Johnston, were appointed this committee.

The Association then went into executive session.

AFTERNOON SESSION.

DR. F. S. DENNIS, of New York, read a paper on

THE EXPLORATION OF THE BLADDER BY THE SUPRAPUBIC METHOD,

which will appear in full in an early number of THE MEDICAL NEWS.

DR. JOHN H. PACKARD, of Philadelphia, then read a paper entitled

SUPRAPUBIC CYSTOTOMY FOR PURPOSES OTHER THAN THE EXTRACTION OF CALCULUS.

He reviewed the history of the operation. Although introduced in 1560, it has, until very recent times, been regarded with a species of superstition, and in the schools and by private instructors it was either entirely passed over or mentioned with disfavor. When it was first performed in this country by Dr. H. Lenox Hodge, in 1874, the operation was severely criticised by many of the best surgeons, although it was eminently proper.

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He did not wish to appear as an advocate of suprapubic cystotomy as against all other methods of access to the bladder; but simply to discuss the question whether or not the objections which have prevailed to place it in the background are shown by reason or by experience to be well founded. This he desired to do without bringing in the matter of hypogastric lithotomy, which has been so ably and so thoroughly handled by Dulles, of Philadelphia, and others; although he recognized, at the same time, the great difficulty encountered in an attempt to leave it wholly aside.

With regard to the proposed surgical procedure, the questions which must arise are: How far is it free from risk in itself? How far does it effect the object in view? What are the difficulties attending its performance? And in comparing any procedure with others having the same end, the same questions must arise, but in the comparative form: Is it more or less safe? Is it better calculated, or not so well, to effect the desired object? Is it easier of performance or more difficult?

He entered into the discussion of the details of the methods of procedure adopted in opening the bladder above the pubes. First, the most thorough antiseptic precautions were advised. In regard to having the bladder distended, he said that most of his cases were of the character in which the organ had been already in danger of bursting from the pressure of the contained urine. With regard to the distention of the rectum, he thought that there is less risk and more advantage. By thus preventing the sinking of the bladder into the pelvis until all the arrangements for drainage have been fully made, one possible source of danger and embarrassment is set aside. With regard to steadying the bladder by the hand of an assistant, when the incision or puncture is to be made, as recommended by some, he thought the procedure not only needless but objectionable. The incision through the skin should be free enough to give ready access to the deep parts. In fat persons it must be about three inches long, but when the abdominal wall is thin two inches in length will suffice. When the incision is made in the median line no vessels of any importance can be encountered. Before opening the bladder it is very necessary to get control of it in some way, lest it should, as the urine flows out, collapse, settle back into the pelvis, and render the orifice made by the surgeon very hard to find. It may become still more difficult to insert a canula. For this purpose he recommended a small double hook, recurved and set at a right angle on a stem. A small tenaculum may be made to answer the same purpose, though its sharp point is objectionable. When a large opening is to be made into the bladder for purposes of exploration, the ligature is perhaps the best method of all for the purpose.

A curious proposition has been made by Duchatelet, and is quoted by Villeneuve, that the opening in the bladder should always be made through the peritoneum, and thus, as he says, that "plasticity should be substituted for friability." Considering the view that the danger of wounding the peritoneum has always been one of the strongest objections to the suprapubic operation, it is only the bolder of the bold who would be thus likely to take the bull by the horns. In regard to the proper point at which to open the bladder, he thought that many authors in avoiding Scylla had steered into Charybdis. In attempting to avoid the peritoneum they had made their incisions so low that the opening must sink below the pubes when the bladder was contracted. In his own opinion the best point is at about the middle of the exposed portion of the viscus.

For drainage he preferred a soft rubber tube of a length to be determined for each case. It should go well into the bladder even when collapsed, and should have lateral openings only near its inner orifice. He did not favor the proposition to have the patient lie on his belly in order to facilitate drainage, because of the discomfort it occasioned. If the opening into the bladder had been large, he recommended the use of two or three catgut sutures. The external wound should be closed also with catgut or silkworm gut, and the drainage tube may be secured by passing through it one of the sutures.

In conclusion, he claimed that it had been his endeavor to examine fairly and without prejudice into the case for and against the suprapubic section of the bladder apart from lithotomy. It would seem, he said, that there has been a mixture of tradition and a sort of superstition in the feeling with which this operation has been regarded. The proportion of absolute successes, so far as he was able to calculate, was eighty per cent., the failures about seven per cent., and the instances in which bad consequences were attributable to the operation about eleven per cent. And in looking at the cases in detail, it seemed to him that on all the counts of the indictment, danger of peritonitis, danger of infiltration of urine and urinary gases, danger of urinary fistula, a verdict of at least "not proven" may fairly be asked for. The suprapubic operation does not by any means in any case preclude the perineal, as was shown by a number of cases cited in the paper. On the contrary, it frequently prepares the way for it.

One question he would ask: If the suprapubic operation had been first tried and generally adopted, is it likely that the perineal operation would have been afterward performed on account of its great ease, simplicity, or efficiency?

DR. A. VANDERVEER, of Albany, then presented a paper entitled

TO WHAT EXTENT CAN WE CLASSIFY VESICAL CALCULI FOR OPERATION, WITH A REPORT OF CASES AND REMARKS ON THE DIFFERENT METHODS EMPLOYED.

In explanation of his presenting a paper on this subject, he remarked that, while he did not come from a stone-bearing section, he had found from conversations with his associates, that he had operated upon rather more than the average number of cases in the vicinity, and it is an operation to which he had devoted considerable study. He then reported briefly his more marked cases, forty-one in number, following the reports with a brief statement of the different methods employed in this and other countries for the treatment of stone. The cases presented represented every variety of stone, as to location in the bladder, prostatic, membranous, and spongy portions of the urethra. The kinds as to formation of hard and soft calculi was singularly complete, while the extremes as to size were remarkable.

After a review of the literature of the subject, he formulated the following conclusions:

In the cases reported, the litholapaxies, where the

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stone was small or up to moderate size, did quite as well as the clean lithotomies.

Regarding the operation of rapid lithotrity, there is much that is wanting in the study of the after condition of the patients, and we ought soon to have valuable statistics on the subject. In this regard we must remember the fallacy of all tables, since many cases never return to the first operator.

In male adults if there is severe chronic cystitis, the suprapubic, or some form of perineal section seems best. One condition in the adult has not received proper attention, namely, the contracted bladder with adhesions, and that must in some instances embarrass the doing of the suprapubic operation. On anatomical grounds the suprapubic operation is much simpler in the youth, owing to the fact that the bladder is much higher in the pelvis.

In girls, rapid lithotrity or suprapubic lithotomy will undoubtedly reach all cases. In adult women, vaginal lithotomy may be added.

Can we yet classify our cases with certainty as to what is the best and most certain course to pursue for the safety of our patient's life and future comfort? In attempting to do this with his own cases, he said, there were seven perineal lithotomies with two deaths and five recoveries, the deaths being in old men with very large calculi. Of attempted litholapaxies there were two cases, both resulting in death, one in his own practice and one in that of the late Dr. Snow. Both were very severe cases of large stone, and the patients presented a history of much suffering through many years. Of dilatation in the female and washing out of fragments or removal of stone entire, there were six cases, all recovering with no complication whatever. Of urethral calculi in the male, there were four cases, all recovering. Of simple lithotrity in the male, there was one case, followed by recovery. Of attempted litholapaxies, which were not completed, there were four cases, three ending in death, and one in which the stone was hidden in a sac and later underwent lithotomy and recovered. One was probably complicated with some form of tumor of the bladder, and had a history of chronic disease of the kidneys. One was a case of chronic alcoholism. One was complicated with sacculated bladder, and the last two were cases of surgical kidney of the very gravest kind. Of the litholapaxies in the male there were eighteen patients having twenty-two operations, four requiring a second operation. Of the number, sixteen recovered and two died; the latter, one after the first and one after the second operation.

He closed with a few remarks on the difficulty of securing a proper examination of the urine, such as would reveal the true condition of the kidneys. Casts are very generally absent; albumen can very often be traced to the presence of pus, and he expressed the conviction that we have yet much to learn from the surgical kidney.

On motion, the discussion of the papers read was postponed until Thursday morning.

The President then announced the following

NOMINATING COMMITTEE:

Drs. J. Collins Warren, John H. Brinton, N. P. Dandridge, T. F. Prewitt, and D. W. Yandell.

THURSDAY, MAY 12TH, SECOND DAY.

MORNING SESSION.

The special order of business was the discussion of the papers read on Wednesday on

OPERATION FOR STONE.

DR. W. T. BRIGGS said that Dr. Dennis's paper gave us the history of the details of performance of suprapubic cystotomy for the removal of stone, and the only point which he desired to notice was the sweeping annunciation that it should be applied, and would be applied hereafter, to all cases, and in all conditions and circumstances, except those in which litholapaxy is resorted to. His own impression is that there is no special operation adapted to all cases, but that each case should be closely scrutinized, and selected for some special operation adapted to that case. He is satisfied that the suprapubic operation is not adapted to all cases. That it is the best for a certain number of cases, there can be no doubt. For a very large stone, too large to be brought through the pelvis without tearing and bruising the soft parts, where there is a deformity of the pelvis, or an injury of the limbs which will not permit of their being brought into the proper position for operation, he has no doubt that it is the better operation to perform.

But there are dangers which attach to this operation, which are greater than any that attach to the perineal section. First, there is the danger of injuring the peritoneum, though that is not great. There is danger from the very manner in which the operation is performed, the distention of the bladder, the distention of the rectum, and then there is a remote danger of hemorrhage. Nor do the statistics bear out the claim that it is the best operation. Further, statistics are always uncertain. If he remembered correctly, the essayist had stated the ratio of deaths as 11 in 120; other statistics give it as much higher. Dr. Gross's statistics state it as 1 in about 4½. He did not think that we can regard the operation as so innocuous as Dr. Dennis did. That we can safely reach the bladder by this method is certain; that we reach it at the best point is another thing. There is no reason that, in cases of stone of moderate size, we should not reach it by passing through the perineum. The lateral operation is so safe as to be attended by almost entire success in children. As a matter of course, when we advance in life the mortality is greater, for, as a rule, the stone is larger in size. The bladder is easily reached; we reach it at a part where it is naturally most easily drained, and at a point where the wound is readily recovered from.

Then again, the operation which he regards as the best, and one in which we can reach the bladder more easily, in a shorter distance, with less hemorrhage, is one where the incision is made directly in the median line, in the raphé, which is merely a seam holding the other parts taut, and which, when divided, permits dilatation of the parts on either side, to almost any extent. There is a considerable danger, however, in the median operation of the neck of the bladder being firm and resisting, but this can be readily overcome by making a little incision on either side into the prostate gland, dividing the gland and the mucous membrane, and when this incision of three lines on either side has been made, the

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parts can be opened up to a sufficient extent to remove any stone which can be brought out of the pelvis. It is sometimes said that an incision cannot be made in the median line large enough to bring out a stone of very large size; that if large stones are brought out of the median opening, they bruise and tear the parts so as to cause infiltration of urine and the consequent bad results, but he showed a few stones that he had brought out through the three-line incision with dilatation, and whether the soft parts were lacerated or not, the patients got well. He produced several calculi of remarkably large size, one being as large as a goose's egg. The largest stone, he remarked, would have been better removed by the suprapubic method, as the patient made a tedious recovery. The median operation is certainly simpler and safer than the suprapubic. If the stone is so large that it will tear the perineum, there is no reason why we cannot pass in an instrument through the opening into the bladder, and crush it previous to extracting.

The world owes a debt of gratitude to Dr. Bigelow for litholapaxy. There is no doubt, however, in his mind whether a clean incision with the removal of all the stone at once, would not present a greater amount of relief—*i. e.*, a less mortality—than would litholapaxy. He then narrated the circumstances which led to his adopting the median operation, which is substantially that of Civiale. Previous to this, he had operated on 45 cases; 40 of them were done according to the old method of Dupuytren, with the lithotome. Since he had adopted the method of Civiale, taking all cases, and not confining it to children, some being children, some adults, some old men, he had operated on 74 consecutive cases without a death. Then two deaths followed, in men of twenty-two years. One had a pelvic abscess, which ruptured in the operation, and the other was a scrofulous subject. Since that time, 45 cases have been operated upon, with one death. That patient died of general tuberculosis three months after operation, with the wound ununited, but with no trouble in the bladder whatever. The mortality of the operation is very light.

In conclusion, he expressed the belief that if the cases are suited to the operation, and the operation is skilfully performed, it can be done with no mortality. Six of his cases were old men, over sixty years of age, and all recovered.

DR. D. HAYES AGNEW said that, as Dr. Briggs had remarked, we cannot tie ourselves to any one operation. Every case must be a case that stands by itself. In reference to the suprapubic operation, he had always said that he did not see the advantage of getting on top of a house to get in, when you can get in on the ground floor. The median operation is unquestionably the safest of all operations in the perineum. Nothing of any importance is divided. The only damage likely to be caused in extracting a large stone is to the neck of the bladder, and that can be corrected by a little nick made upon either side which admits of expansion of the wound to almost any extent that is necessary for the extraction of an ordinary stone. Where the stone is found by exploration with the finger to be one of great magnitude, and yet one which should come through the perineum, it is well to divide a little on either side of the neck of the bladder, and convert what would be a lacerated wound into an incised one, which is always less dangerous.

There is still another feature, which is likely to make this operation even less dangerous than heretofore. That is the use of antiseptic solutions, substituting the warm water which used to be employed by a weak solution of the bichloride. The cases in which the suprapubic operation should be used, are those in which the stones are of very great magnitude; so that, when we come to sum up this whole matter in the future, as we will do, the profession will settle down to the old operation. Still he thinks that we should adhere to the old maxim, "Try all things; choose the good."

DR. J. R. WEIST had operated a few times for stone by other methods before, but since he was acquainted with the operation of Dr. Briggs, he had invariably followed it. He felt so well pleased with his successes, all his patients having recovered, that he was indisposed to change for an operation which he was led to believe requires more care and a higher degree of skill. It would be remembered that the essayist was particular to give very specific directions as to making the incision, he also spoke of the danger of going too far up, the danger of going too far down, too near the pubis, all of which conveyed the impression that the operation is one requiring great experience and care. All of his patients, he continued, with one exception, have been old. While he was willing to admit that there are cases in which a resort to the suprapubic operation would be proper, still he believed that the median bilateral operation is preferable, and that it is a safer operation even than crushing the stone. In the report of Dr. Vanderveer yesterday, he had observed that in some instances in which he had very carefully washed out the bladder, the autopsy revealed the fact that he had not succeeded in removing all the fragments.

DR. WILLIAM A. BYRD remarked that there was no occasion for tearing the soft parts in extracting a large stone through a perineal opening, providing the stone be crushed. For this purpose he recommended an instrument with short thick blades, capable of exerting great pressure, without risk of including the walls of the bladder in its grasp.

DR. MUDD remarked that the median lateral operation had been followed by such successes that it seemed to him the last of operations to be displaced; but with the introduction of litholapaxy there came a revival of the suprapubic operation, and to this, he thought, is due, more than to any other circumstance, the attention which has been given to the latter operation. That it is a valuable operation for exploration or for the removal of a very large stone he agreed, but that it is better than the other operations he did not believe.

In the discussion yesterday the proper test of the value of this operation was referred to—that is, its applicability to those cases of chronic cystitis with firmly contracted bladder. He had in his possession a specimen in which the bladder was very small, not capable of containing more than two ounces of fluid, the walls being from a half to three-fourths of an inch thick and so rigid that they would break before they would yield. In this instance he made the lateral operation and consequently lost the patient.

In another case in which he had conducted a post-mortem in an old man who had suffered for years from stricture, he found a very firm, hard bladder. In another case a bullet had passed entirely through the

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bladder. The viscus had been operated upon and explored by the perineal method. He found an injury in the floor of the bladder through the base, on the left side. The patient had a severe and purulent cystitis. Another induration was felt in front extending above the pubic bone. It was so rigid and dense that no impression could be made on it through the abdominal wall. Suprapubic cystotomy was made. Upon passing through the abdominal wall in the median line, a firm, dense, fibrous thickening of pyramidal form was found resting upon the pubic bone. Into this he made an incision but found himself unable to separate the edges of the wound so as to get access to the bladder, although the latter viscus was easily distended. The sound in the bladder reached the abdominal wall above the induration. After exposing quite fully, as he thought, the bladder wall, he made an incision and found that he had punctured the peritoneum. Opening up more freely the cavity he pushed his finger on and exposed the bladder, made an incision into it and explored it with the finger. He accomplished nothing by the operation. He found no difficulty in closing the wound and the patient made a good recovery.

DR. J. COLLINS WARREN had seen two cases of suprapubic cystotomy within the past year, one for a stone of large size, the other for a tumor of the bladder. There did not seem to be any difficulty in the operation on anatomical grounds. Both cases recovered. The sound was not required in either case. He had also had a case which illustrated the advantage of this operation. The patient was one who had been operated upon for stone by the father of the speaker, thirty years ago, by the bilateral method, and came under his care suffering again from symptoms of stone. Upon examination he found a calculus lying in a cul-de-sac on the distal side of the cicatrix in the bladder wall. It was removed by perineal section and the man recovered. He had, however, thereafter, ejaculation of semen into the bladder entirely.

He had in one case performed vaginal cystotomy. He found no danger of the production of vesico-vaginal fistula. It is only in cases in which a large amount of the vaginal wall is destroyed that there is danger of a fistulous opening remaining; an incised wound of the wall readily heals. For large stones suprapubic lithotomy may be resorted to, although litholapaxy is a good operation, performed many times in Boston. It is an operation which, however, is not required in females. Operators have never had any difficulty in Boston, he concluded, in getting out the fragments of stone after litholapaxy. A good deal depends upon the method of using the evacuator, it should be used slowly and cautiously.

DR. T. R. VARICK thought that the size of the stone had been made a good deal of a bugbear in regard to the extraction through the perineum. He reported the case of a boy of fourteen who had suffered from symptoms of stone for seven years, and upon whom he operated by the bilateral method and extracted entire a stone weighing seven ounces and four scruples, as large as an ordinary goose's egg. There was no perceptible laceration of the soft parts and the boy made a progressive recovery. That seems to controvert the idea of Sir Henry Thompson that no stone weighing more than three ounces can be removed through the perineum. The operation just reported was made on the 9th of December and the boy left the hospital on the 30th of December, well. The speaker makes a practice of applying hot water to the wound immediately after the operation, both as a styptic and as an antiseptic, using a sponge dipped into water just below the boiling point.

DR. D. W. YANDELL said that, in the main, the ground occupied by Dr. Agnew exactly expressed his views of the subject. His own experience amounted to a total of 106 cases; of lithotomy 92 cases, of lithotrity 8, and of litholapaxy 6. He did not feel inclined to change to the suprapubic operation. It did not strike him as an operation that is any better or any safer, except as to virile powers. Nearly all his cases were in young persons. In the cutting operation his losses had been seven per cent., without any returns of the stone. In the eight lithotrities he had had two returns, and the same number of returns in the six litholapaxies. Up to date he considered the operation of Dr. Briggs the best that can be made, and preferred any perineal section to the suprapubic.

DR. JOHN B. ROBERTS remarked that we yesterday heard only one side of the operation; whereas, to-day, we hear only the other side of it. The truth would probably be found in the median line. For his own part, he could not change the opinion he had expressed three years ago, when he said that the high operation is certain to become an important one. The discussion this morning has been almost entirely with reference to stone, without taking into consideration its applicability for exploratory purposes, for tumors of the bladder, etc. Is not the suprapubic operation in reality the better; is it not the safer operation? In regard to treating stricture of the urethra by the suprapubic operation, he thought it rather a severe operation to attempt. Aspiration will generally, on the second or third day, at least, result in getting an instrument into the bladder.

DR. J. E. MICHAEL thought that we should consider further the remarks of Dr. Packard with reference to the evacuation of retained urine. As to this or the same operation for the relief of stricture he thought the latter speaker had gone too far. Opening the bladder by the "ground floor," as Dr. Agnew expressed it, is always simple, and seems to have many advantages over the suprapubic method. He thought that suprapubic aspiration is all that is necessary for the immediate relief of the retention, and the true indication in prostatic cases is the use of the soft catheter. The use of suprapubic cystotomy in these cases simply exposes the patient to the risk of two operations where only one is necessary. It seems more sensible and more just to the patient to perform the perineal operation at once. With reference to the suprapubic operation for exploratory purposes, and in some cases for foreign bodies, there can be no question as to its being proper, but for prostatic trouble and for most cases of calculus, the perineal section is better. He had performed the operation nine times without a guide and had not lost a case.

DR. VANDERVEER thought the remarks of Drs. Michael and Yandell in reference to the paper of Dr. Packard were correct. He had twice made the perineal operation, once for exploration and once for chronic cystitis, in which cases, if he had it to do over, he would

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use the suprapubic method. He recognized the correctness of Dr. Warren's advice to remove the débris slowly, and begged to remind the latter of the fact that he had only once experienced difficulty in the extraction of the fragments. In that case the crushed stone appeared to form a kind of plug which completely clogged the tube. The other case was one in which the instrument broke. If the removal is attempted with too great rapidity, there is danger of drawing in the bladder wall and causing injury. Dr. Yandell struck the key-note, when he said we have no one method of operating in all cases. Dr. Agnew also expressed the truth in an admirable manner. Of his six cases, five were operated upon by the median bilateral method, with the rectangular staff, and he thought that hereafter he would always use this staff.

It is too soon for us to collect statistics on this operation. Dr. Byrd has had admirable success with the crushing instrument, and thinks that he can crush any stone, but crushing through the perineal opening is a difficult matter on account of the possibility, almost certainty, of doing injury to the soft parts. Sir William MacCormac insists upon closing the wound in the bladder if it is possible. This is, however, contrary to the view expressed in Dr. Warren's paper. In conclusion, the speaker expressed his preference for aspiration of the bladder for retention of urine over the suprapubic operation.

DR. CHARLES B. NANCREDE then read a paper entitled

SHOULD LAPAROTOMY BE DONE FOR PENETRATING WOUNDS OF THE ABDOMEN INVOLVING VISCERA?

His chief object in presenting this paper he said, is a medico-legal one. A few years since, the counsel for the defense in a famous murder trial asserted that the examination of the track of a bullet with a probe in a penetrating gunshot wound of the abdomen had turned the scale toward a fatal issue, and cited many eminent authorities, in support of this view, and urged an acquittal of his client of the crime of murder in the first degree. At present the tendency seems toward active interference, toward operations which, in the hands of the most experienced, cannot be denied to have a certain mortality *per se*, and which, done promiscuously, by those inexperienced in abdominal surgery, will undoubtedly tend to render death more certain. Laparotomy for these injuries has been generally endorsed by the American Medical Association; in a most emphatic manner, by the New York State Medical Association, at its last meeting, and by the Philadelphia Academy of Surgery. Nevertheless, protests have appeared in the journals from time to time, and he felt impelled to ask the Association to express an authoritative opinion which may serve as a precedent for appeal.

The questions which must be decided are:

What are the tendencies of an injury; are they toward recovery, or toward death? When death takes place, what are its causes? When recovery occurs, what conservative processes occur? How likely are these conservative processes to take place, and what favors or prevents them? How reliable are unaided natural methods compared with those art affords; and should they be imitated by the surgeon or avoided? Finally, what are the dangers inherent to the operation of laparotomy, and what advantages does it afford?

He then reviewed the experiments of Wegner and Grawitz, since in them he found the explanation of certain otherwise inexplicable clinical facts and a clear indication of the causes of the complications especially dreaded after belly injuries or laparotomy, and how these dangers may be averted. The experiments, he thought, demonstrated that the theory of gynecologists is true, that operations through the peritoneum are safer than most operations in the daily experience of the surgeon, since many of the microörganisms can be introduced with impunity into the peritoneal cavity, and the ordinary germs of decomposition can produce suppuration only in the presence of certain conditions which can be avoided. They also indicate the importance of thorough cleansing of the wound and the removal of all foreign matter.

What are the tendencies of the disease, toward recovery or death? Examination of the only statistics of sufficiently large size shows that a fraction under eight per cent. of recoveries follow penetrating wounds of the abdomen, but of these some doubtless sustained no visceral injuries, as is not uncommon. Others, perhaps, there were, the walls of whose hollow viscera were penetrated obliquely; others again in whom the alimentary tract was wounded in those parts which possess an anatomical arrangement unfavorable to the extravasation of their contents. After penetrating abdominal wounds, as after every other injury, however severe, there are certain conservative processes initiated which occasionally succeed unaided by art; yet from an impartial consideration of the above facts, it appears that when visceral wounds undoubtedly exist, the tendency of these injuries is invariably toward death, recoveries being so rare as to be regarded and reported as surgical curiosities.

What is the cause of death? Hemorrhage in itself is rarely fatal, but may occur to a dangerous extent, especially in the young or the aged, and that, too, from vessels of a size to be readily considered insignificant, were they not situated in a closed cavity. Death is, however, due in nearly every case to septic peritonitis caused by the extravasation of flatus, feces, urine, or bile, possibly also by fragments of soiled clothing. When recovery takes place, what conservative processes occur? The feces, fluids, gases are absorbed without causing either local inflammation or systemic infection, and a limited adhesive inflammation results which is just sufficient to glue the injured organs to the abdominal wall, or to a neighboring viscus. What favors or prevents these conservative processes? The absence or slight extent of flatulent, fecal, urinary, or biliary extravasation; the absence or slight amount of effused blood or serum; a favorable relation of the wounds with reference to neighboring viscera or the abdominal wall, providing for free drainage in the exceptional cases mentioned in this paper; valve wounds, and above all, an antiseptic condition of the peritoneal surfaces of the wounds and the immediate environment, since without these no reliable limited adhesive inflammation can occur; and partial or complete arrest of intestinal peristalsis — *i. e.*, rest — admitting the most perfect permanent coaptation of the wounded peritoneal surfaces which is feasible — all favor the conservative processes, while the reverse prevents them.

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What are the dangers of laparotomy? Shock is all that we need dread.

The advantages of the operation are manifold. Thus, we can either forestall septic peritonitis or reduce its dangers to the minimum; we can prevent septicæmia; we can arrest hemorrhage; we can substitute for adhesions of doubtful permanence, certain methods which secure the escape of injured portions of the gut into the lumen of the bowels; we can prevent the fatal result which must follow the casting off of the decomposed slough, of a wounded portion of the omentum or messentery into the general peritoneal cavity; we can restore the continuity of the gut; we can avoid the risk of fecal fistula; we can remove the hopelessly wounded kidney or spleen and repair the injured pancreas or liver.

With regard to the objection that all of the symptoms of perforation of the bowel are fallacious, except those of fecal or gaseous extravasation, he referred to four cases reported by the President, from which he inferred that even punctured wounds of the abdomen, without penetration of the viscera, are better treated by exploratory incision than by the expectant plan of treatment, provided the operation be done with due care.

He then reviewed briefly the symptoms which are relied upon by most authors as evidence of the perforation of viscera, as the extravasation of bile, urine, feces, gases, repeated vomiting, the passage of blood in quantity per anum, etc. Among the more important contraindications to the operation, he mentioned profound shock as the most important. If, because the patient has been seen too late, a generalized, well-defined peritonitis exists, laparotomy is strongly contraindicated.

With reference to the proper time for the operation, he said that it should be done at the earliest possible moment the condition of the patient will warrant it.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

DR. C. H. MASTIN, Chairman of the committee appointed at the last annual meeting of the Association, reported a series of resolutions adopted by the committee in regard to the proposed American Congress.

Resolved, 1. That it is desirable that the following societies, viz., the American Surgical Association, the American Ophthalmological Society, the American Otological Society, the American Neurological Association, the American Laryngological Association, the American Gynecological Association, the American Dermatological Association, the American Climatological Association, and the Association of American Physicians, shall arrange for a conjoint meeting in the city of Washington, in the month of September, 1888, and subsequently at intervals of three years at the same time and place.

2. That this arrangement shall not interfere in any way with the autonomy of each of the special societies, and that each society shall retain the right to withdraw at any time from this joint scheme.

3. That the special features of the meeting shall be the joint assemblage of the special societies on two evenings during the session, on one of which there shall be an address delivered by the President of the conjoint meeting, and on the other there shall be a communication by a referee and a coreferee on some subject of general professional interest.

4. Each special society approving of this report is invited to appoint one representative (with an alternate) and that the representatives so appointed shall constitute an executive committee to serve for one year, and with power to elect such officers for the first conjoint meeting as may be deemed necessary, to prepare a programme for such meeting, to make all the other necessary arrangements and to prepare and submit a plan of organization for future meetings.

5. That all expenses connected with the conjoint meetings shall be apportioned equally by the executive committee among the societies participating.

The report of the committee was received and the resolutions adopted.

Dr. C. H. Mastin was appointed as representative and Dr. J. Ford Thompson as alternate on the proposed Executive Committee.

AFTERNOON SESSION.

DR. R. A. KINLOCH reported

A CASE OF GUNSHOT WOUND TREATED BY LAPAROTOMY,

which will appear in full in an early number of THE MEDICAL NEWS.

DR. W. W. KEEN then presented a paper on

PISTOLSHOT WOUND OF THE ABDOMEN: LAPAROTOMY, NEPHRECTOMY, DEATH.

(See THE MEDICAL NEWS for May 14, page 533.)

DR. P. S. CONNER remarked that we all now agree that, if an operation is to be made it should be made in a certain definite manner, the method which is most tried, most reliable, and most certain in its results. The question is not how to close the wound in the intestine, but when to open the abdominal cavity in order to find the intestinal puncture. We know that in the great majority of cases of perforating wound of the intestinal cavity death results either from shock, from hemorrhage, or from extravasation and peritonitis. We know further than this that a certain, though limited, proportion of cases recover if they are let alone. We know that if the operation is made it by no means necessarily saves the patient, and in the presence of an actual case the point to be determined is whether it is advisable to add to the existing traumatism another one. If extravasation of bile, blood, urine, or feces occur, however, there can be no question of the propriety of opening the abdomen; but if we simply know that a gunshot or stab have penetrated the abdomen, it is very difficult to determine whether extravasation have occurred or not. There is not a single symptom that can be relied upon. On the other hand a bullet may pass through the stomach itself, or still more some portion of the intestinal tract, and no blood or other fluid may have been extravasated. Hemorrhage from the bowel does not mean anything. Shock does not indicate anything. We would naturally suppose that an individual who is struck in the abdomen would have profound shock, but every one of us has seen cases in which the shock is comparatively trivial. He has seen cases of more profound shock from a wound of the hand than from a gunshot wound of the abdomen. The shock, again, may be merely nervous in character, and not that from hemorrhage. Further, the condition of the patient may be good and it may be bad. He thought that con-

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siderable reliance may be placed on the observation of a profound depression of the temperature, and he still believes that if the temperature is below normal for five or six hours after the receipt of the injury, perforation may be supposed to be present, but there is still room for doubt.

If the intestine is injured should the abdomen be opened? Theoretically, yes. Practically, we know that many cases are no better off after opening the abdomen than they were before. A great deal of harm may be done by opening the abdomen where no injury is found. It is a very different thing to open the abdominal cavity where the peritoneum is normal and healthy, from opening it where the peritoneum has been pressed upon for a long time by a tumor. Many of these cases involve legal questions, and, as has been intimated, if the patient die after surgical interference, it may be the means of permitting to escape a criminal who should be made to suffer his just punishment. If the operation be delayed eighteen to twenty-four hours the chances for recovery are slight.

He then referred to a case which he had seen in the hands of Dr. Dandridge, in which eleven wounds of the bowel were found and accurately closed, without benefit. He had himself, on two occasions, sewed up knife wounds of the intestine so closely that water could not be forced through the openings at the autopsy, which had to be made within twenty-four hours afterward. From all this he concluded that for the treatment of penetrating wounds of the intestine we are not yet justified in laying down any rigid rule that this operation must be done in all cases. We want light, therefore, if possible, upon the diagnosis of these cases. If we can in any possible way ascertain, without opening the abdomen, that perforation has or has not occurred, we want to know it. At the present time the diagnostic signs are very uncertain. Of these cases, therefore, a great many will be lost because of the delay which is almost inevitable, from the present state of our knowledge.

DR. MOSES GUNN remarked that we are about as much in the dark as ever regarding the important matter of diagnosis. He reviewed the early history of the operation as done for ovariotomy, of which it was at one time said that the operation was a lottery in which the drawing was a blank. Then it was explained that the successes which followed it were due to changes in the structure of the peritoneum. The peritoneum was thought to be particularly susceptible to inflammation, and when the ovariotomists brought forward their successful cases of operation, where there had been extensive adhesions, the doubting members said that the peritoneum had undergone some change. Then antiseptic surgery developed, and it was found that the time for ovariotomy was early. It was found that the peritoneum, with all its pristine individuality, could be handled antiseptically without danger. Finally, Sims came forward with the view that the operation should be made for traumatism. With regard to this application of the operation, although only a few years have elapsed since its introduction, he thinks we are safe in saying that it should be made. Cases occur in which the danger of perforation of the intestine has been great, and laparotomy is a safe method to pursue for its relief. We can all call to mind cases in which there was every possible indication that the intestine was perforated, and yet the patient recovered; but we could not say positively that the intestine had been perforated. He then referred to an insane woman who stabbed herself with a scissors, drew forth eleven inches of intestine, cut it off, and recovered after the wound had been properly closed. He could not answer the question how to make a diagnosis of perforation, but confessed a weakness for diagnostitial laparotomy.

DR. DAVID PRINCE reported a case of laparotomy for gunshot wound in which, after the most careful search, a perforation of the colon was found back of the liver, where it becomes transverse. The patient made a slow but perfect recovery. He expressed preference for making the incision, not in the median line, but directly over the point of entrance of the missile.

DR. T. G. RICHARDSON stated that he desired to make a criticism upon the paper of Nancrede, without casting any slur upon the operation of laparotomy. The essayist is apparently in favor of making laparotomy upon every case of gunshot wound or other injury of the abdomen; he was particular to state, however, that it should be made only by a skilful surgeon. If we restrict the operation to this class of operators, a great part of the benefit of the operation is taken away, for the majority of cases do not fall directly into the hands of those whom we call experienced and skilful surgeons. His own experience demonstrated to him that a large majority of cases of gunshot wound of the abdomen get well without operation. Of 31 cases of penetrating knife wound, 24 recovered, 7 died. On the other hand, however, of 37 cases of gunshot wound only 17 recovered, 20 died. Adding these together, gives us 68 cases of penetrating wound, of which 41 recovered, 27 died.

DR. D. HAYES AGNEW desired to place himself on record, for he had very strong convictions with regard to this operation. Where we have a reasonable degree of evidence that we have a wound penetrating the intestine, especially a shot wound, it is our duty to open the abdomen. We are not to be deterred because of the possibility of some legal technicality if the case comes into court. We are to do our duty without reference to consequences.

DR. N. P. DANDRIDGE reported a case of gastrostomy in which the operation was for stricture of the œsophagus, caused by swallowing washing fluid, about six months after the accident. The patient was emaciated to the last degree, and was at the time of the operation unable to swallow anything. The condition of the child was so desperate at the conclusion of the operation, that it was considered advisable to introduce at once nourishment by means of the aspirator into the stomach. The child was nourished for several days in this manner, the quantity injected being gradually increased, until four or five ounces were thrown in at a time. The child did well until she took measles; then the wound began to ulcerate, and she finally died of erysipelas.

DR. JOSEPH RANSOHOFF reported two cases which had come under his observation in which the question of laparotomy was of great importance. The first case was that of a young man who had suffered from stricture of the rectum for two years. The stricture was high up, so that it could be just reached with the finger. By a process of gradual dilatation he had become able

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to pass the largest size of the soft rubber bougie. He then used hard rubber bougies, choosing the largest of the nest of bougies made in England. The ninth time he had passed it, he experienced no difficulty, but the patient complained of a good deal of pain. Two hours later he had severe pain in the iliac region and was vomiting. He decided to make an exploratory incision, and telegraphed to the patient's physician to that effect. A physician and a surgeon were called in consultation. The physician did not think the time for laparotomy had arrived, and the surgeon was opposed to it *in toto*. The physician twenty-four hours later concluded the time had arrived, the surgeon still opposed, and it was abandoned. The patient died six days after the accident. A post-mortem was not allowed. The question in this case is whether the result would have been different had the abdomen been opened. In regard to it, he felt no little regret, inasmuch as he feared that the death of the patient might have been to some extent the result of his efforts, and was permitted to occur without any attempt at prevention.

Only last Sunday he was asked to see a man who had been shot in the back. He had received a number of wounds of large size, entering just above the ilium, and, apparently, taking a forward course. He saw the patient about an hour after the receipt of the injury. He was in good condition, pulse 84 to 90, and full. He had vomited, probably owing to the fact that he had indulged largely in beer. There was considerable pain. Next morning, Dr. Conner was called in consultation. The condition of the patient was such as to render the operation out of the question. Two hours later he was moribund and died soon after. The post-mortem showed that the laparotomy would not have been of any service. In the case of stricture of the rectum he thought laparotomy would have saved the patient, although no autopsy was made. The patient was too young to render the presence of cancer at all probable.

DR. NANCREDE did not consider that a prominent depression of the temperature is a symptom in these cases. A healthy peritoneum does not resent a laparotomy, for it is able to dispose of a large amount of feces, urine, bile, blood, and, to some extent, also of septic microörganisms. But the moment the vitality of the peritoneum is impaired, just that moment the dangers of the operation are increased. In regard to diagnosis, he thought that a penetration could readily be determined by a careful incision of the abdominal wall down to the peritoneum, following the track of the ball, and that in many cases the result, where no perforation was found to exist, would be better than if the patient had been let alone. By the term skill he had meant to imply a knowledge of what was to be done and an attention to detail, both of which were certainly requisite in the performance of this operation. He finally objected to the custom of giving large doses of opium after all operations, as introduced by Alonzo Clarke and practised by many.

DR. KINLOCH stated that there was one thing in the discussion which had gratified him more than anything else. That is, that two distinguished members of the Association have said clearly and authoritatively that laparotomy, under proper circumstances, should be performed. Some who have discussed the question, however, are inclined to think that the great question is that of diagnosis. He was opposed to the practice of waiting too long. It was the uncertainty of diagnosis that for a long time checked the progress of surgery in the operation of ovariotomy, and where is it now? It was this fear that checked the progress of surgery in regard to the treatment of injuries of the brain, and where is it to-day? This is the same reasoning that the surgeons of old advocated. Many of them advised ovariotomy, but none of them performed it, and we should make a difference between the surgery of the past and that of the present. In regard to the question of whose duty it was to perform the operation, he applied the words of Dr. Agnew. We should do our duty, and because a poor negro is shot in a cotton field and the nearest doctor is called, we must not say that he shall not attempt to save a life because he is not a skilful surgeon. He then narrated his first experience with the operation, in a Confederate hospital during the war. When he had finished, he found that his older assistant had left the room in order not to witness his inhumanity. After the patient recovered, however, he numbered that older physician as one of his warmest friends.

(*To be continued.*)

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 11, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

CASE OF FRACTURE AND DISLOCATION OF THE ASTRAGALUS.

DR. STIMSON showed a portion of an astragalus, and read the following history: Man, about twenty-eight years old, in a fit of drunken delirium jumped from a third-story window, and was brought to Bellevue Hospital, April 27, 1887. I saw him the next morning, about eighteen hours after the accident. There was a large tumor below the right patella and a row of abrasions along the left shin, and a small tumor below the left patella. The left foot and lower half of the leg were swollen and discolored, the foot at right angles to the leg and capable of some flexion and extension, and without deviation. A marked prominence at the inner ankle, over which the skin was tightly drawn and livid, was at first thought to be the internal malleolus, and the foot seemed to be carried bodily to the outer side, but on palpation the prominence was found to be behind and a little below the malleolus, and to have a curved border running backward and outward; below this border could be felt a broad surface, that was curved backward and inward, and flat downward and inward, in front was an abrupt depression. The scaphoid was normally placed in respect to the malleolus, and no depression could be felt behind it in the situation of the head of the astragalus, although the swelling was such that the examination was not deemed very trustworthy. The perineal tendons were displaced forward, lying upon the outer surface of the external malleolus. The relations of the fifth metatarsal, cuboid, and calcaneum appeared to be normal. The dorsalis pedis artery was beating, the posterior tibial could not be felt.

The diagnosis of fracture of the neck of the astragalus with dislocation backward and inward, and inward rota-

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tion of the body was made, and an attempt was made to reduce under ether by flexing the knee, making traction downward upon the foot, and pressure outward and forward upon the projection behind the internal malleolus. This failing, an incision three inches long was at once made backward and downward from in front of the malleolus, its centre corresponding to the most prominent part of the projection. The upper articular surface and outer edge of the astragalus presented in the wound, and the body of the bone was found lying below and behind the malleolus; its broken neck directed forward and inward, its upper articular surface looking inward and downward, its posterior border close to the tendo Achillis, and its inferior surface close behind and below the posterior border of the end of the tibia; transverse fracture had taken place at the junction of the body and neck, and the body had been completely dislocated backward and inward, with rotation inward of about 120 degrees about its antero-posterior axis, and about 45 degrees inward about its vertical axis. The tendons of the tibialis posticus and flexor longus digitorum were torn from their sheaths and crossed the inner surface of the malleolus above the astragalus. The posterior tibial artery was pressed backward and separated from the tibia by the interposed posterior portion of the body of the astragalus. Exploration of the joint showed the head of the astragalus in place, and absence of injury to the tibia or fibula. The lower tibio-fibular joint was not injured. The fracture ran from the anterior border of the trochlea downward into the groove occupied by the interosseous ligament.

The body was easily removed, as all its ligaments and connections had been ruptured except a part of those attached to its posterior border. The wound and joint were thoroughly cleaned, a drainage tube inserted, the incision loosely closed by two silkworm gut sutures, the foot and lower part of the leg enveloped in iodoform and bichloride gauze, and a plaster-of-Paris bandage applied over all.

On the following day the patient's alcoholic symptoms were much less marked, and his condition good. On the third day a fenestra was cut, and the tube removed; the wound was dry, the swelling less, and everything looked favorable, but three days later he developed pneumonia, and died on the ninth day after the accident.

To this record of the case he added a brief mention of the few similar cases that have been reported. They are those of Denonvilliers, Lejeune, MacCormac, Legros Clark, Pichoree, and Cheever. In the first two the dislocation was directly backward; in the others, backward and inward, as in the present case. Of Denonvilliers, he had only the brief note given by Malgaigne: the body of the astragalus covered the calcaneum at right angles, and its trochlea appeared through the skin below and behind the internal malleolus; he removed it, but the patient died. Of Lejeune's and Pichoree's, the quotations by Delorme (*Dict. de Med. et Chir. Prat.*, vol. xxvii., p. 643) and Poinsot (translation of Hamilton's *Fractures and Dislocations*) are even briefer; of the first it is said only that the dislocation was compound; of the second only that after two unsuccessful attempts to reduce, including division of the tendo Achillis, suppuration ensued, and the limb was amputated.

MacCormac's[1] patient was injured in the fall of a platform; the character of the injury was not recognized, and after rest for some weeks in bed, he was able to walk well and continue his occupation as bricklayer. Two years later MacCormac removed the leg because of disease at the knee, and made a careful dissection of it. The foot was stiff, at a right angle with the leg, and without deviation. The astragalus had been broken at the neck, and the body had been so displaced and rotated that it lay behind the tibia, and a little to the inner side, its trochlear surface looking inward and backward, its posterior border in contact with the tendo Achillis, and its broken surface looking downward and forward. The internal malleolus had been broken, and had reunited, and the astragalus was connected with it by bony union. The tendons of the tibialis posticus and flexor longus digitorum were displaced inward and forward, lying on the inner surface of the malleolus, that of the flexor longus pollicis was separated from the tibia by the body of the astragalus, and lay upon the trochlear surface of the latter. No mention is made of flexion of the great toe, such as existed in Cheever's case, and in others in which the unbroken astragalus was displaced backward and inward, but one of the accompanying figures shows the terminal phalanx flexed.

MacCormac reports also a case treated in 1863 by Legros Clark, which he himself had an opportunity to examine twelve years later; he found the body of the astragalus in a position identical with that of his own case, and supposed there had also, probably, been fracture of the neck. The patient had full use of the limb, walking without any lameness.

Cheever's[2] patient, a man thirty-two years old, was injured in a fall of about twelve feet. There was a very marked, partly rounded, partly sharp projection of bone between the inner malleolus and the heel, and a depression beneath the outer malleolus. The tendo Achillis was tense and shortened over the unnatural prominence of bone which lay between the inner ankle and the heel. The heel was drawn up; the mobility of the ankle-joint was greatly diminished. The last joint of the great toe was strongly and immovably flexed at a right angle. After failing to reduce by traction under ether, he divided the tendo Achillis, then the tibialis anticus and posticus, then the flexor communis digitorum, and finally the flexor longus pollicis at the toe, but the dislocation still remained irreducible. The skin sloughed over the astragalus, but did not expose it, and the ulcer soon healed; in seven weeks the patient could freely move the foot, and in five months could walk with a cane. The divided tendons appeared to have solidly united.

The histories do not make clear the mode of production of the fracture and dislocation, but it seems probable that they occurred while the foot was in dorsal flexion, and by the agency of extreme violence acting in the direction of the long axis of the leg, along the sloping articular surface of the calcaneum, and bringing the tibia and calcaneum closer together, so that the posterior part of the astragalus is squeezed out from between them.

[1] Trans. Path. Soc. London, 1875, vol. xxvi. p. 174.

[2] Cheever: Boston Med. and Surg. Journ., 1875. vol. 93. p. 237.

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DR. SANDS said that he had a specimen similar to the one presented. It was obtained from a patient whom he saw in consultation in Tarrytown, with a fracture and dislocation of the astragalus inward. The fracture was nearly vertical in direction, and was situated just in front of the ankle-joint. The skin over the upper dislocated fragments was greatly stretched. He cut down directly upon the bone and easily removed it. The patient recovered and walked well afterward, but had slight shortening and stiffness of ankle. He thought that there was no advantage in wasting time by trying to effect reduction, because the conditions were so unfavorable; it was better to excise early, especially since the results obtained by modern antiseptic methods were so good. The broken bone acted as a foreign body, and would, if allowed to remain, do injury to the soft parts.

NEWS ITEMS.

THE ASSOCIATION OF AMERICAN PHYSICIANS announces the following programme for its second annual meeting at Washington.

THURSDAY, JUNE 2. *Morning Session*, 10 A.M.—Remarks by the President, Dr. S. Weir Mitchell. Cirrhosis of the Liver in Children, by Dr. R. Palmer Howard, of Montreal. Obstructive Safety-valve Action in the Heart, and direct Functional Murmurs, by Dr. John Guitèras, of Charleston. Pneumatic Differentiation, by Dr. Hosmer A. Johnson, of Chicago.

Afternoon Session, 2.30 P.M.—Discussion on Antipyretic Treatment, introduced by Drs. H. C. Wood, of Philadelphia, and G. Baumgarten, of St. Louis. Cases of Sewer-gas Poisoning, by Dr. Henry Hun, of Albany. A Case of Aneurism of the Abdominal Aorta, by Dr. James T. Dana, of Portland.

Evening Session.—Discussion on Hemorrhagic Infarction, introduced by Drs. W. H. Welch, of Baltimore, and Wm. Osler, of Philadelphia.

FRIDAY, JUNE 3. *Morning Session*.—Bergeon's Method of Treating Phthisis, by Drs. E. T. Bruen, of Philadelphia, and F. C. Shattuck, of Boston. Atrophy of Gastric Tubules; its Relation to Pernicious Anæmia, by Dr. F. P. Kinnicutt, of New York.

Afternoon Session.—Observations on the Employment of Antipyrin and Thallin in the Treatment of Typhoid Fever, by Dr. Francis Minot, of Boston. An Inquiry into the Frequency with which Lead may be Found in the Urine, and on the Symptomatology of Chronic Lead Poisoning, by Dr. James J. Putnam, of Boston. Forms of Typhoid Fever Simulating Intermittent Malarial Fever, by Dr. I. E. Atkinson, of Baltimore.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION will hold its Ninth Annual Congress in the Hall of the Academy of Medicine, in New York, on May 26th, 27th, and 28th. The following papers are announced:

MAY 26. *Morning Session, 10 o'clock*.—Intubation of the Larynx, by E. Fletcher Ingals, M.D., of Chicago. Description of a Modified Laryngectomy, by J. Solis-Cohen, M.D., of Philadelphia. A New Method of Intubation of the Larynx, by Charles E. Sajous, M.D., of Philadelphia.

Afternoon Session, 3 o'clock.—The Pathological Nasal Reflex: an Historical Study, by John N. Mackenzie, M.D., of Baltimore. Hay Fever, with Results of Treatment, by John O. Roe, M.D., of Rochester. On the Treatment of Atrophic Rhinitis by Applications of the Galvanic Current, by D. Bryson Delavan, M.D., of New York. Myalgia of the Pharynx and Larynx, by S. H. Chapman, M.D., of New Haven. Discussion. Sensory Affections of the Throat, opened by Frederick I. Knight, M.D., of Boston.

MAY 27. *Morning Session*.—Further Researches upon the Function of the Recurrent Laryngeal Nerve, by Frank Donaldson, Jr., M.D., of Baltimore. The Anatomy and Physiology of the Recurrent Laryngeal Nerve, by Franklin H. Hooper, M.D., of Boston. On Certain Measures for the Relief of Congestive Headaches, by William C. Glasgow, M.D., of St. Louis. A Case of Leucoplakia Buccalis: Recovery, by William C. Glasgow, M.D., of St. Louis.

Afternoon Session.—Discussion. The Treatment of Laryngitis in Professionals who are Unable to Rest, opened by J. Solis-Cohen, M.D., of Philadelphia. Glandular and Connective Tissue Hypertrophies of the Lateral Walls of the Pharynx, by Clarence C. Rice, M.D., of New York. The Galvano-cautery in the Treatment of Hypertrophied Tonsils, by Charles H. Knight, M.D., of New York. Note on a Frequent Cause of Nasal Hemorrhage, by Beverley Robinson, M.D., of New York. The Constitutional Causes of Sore Throat, by S. W. Langmaid, M.D., of Boston.

MAY 28. *Morning Session*.—Affections of the Crico-Arytenoid Articulation, by George W. Major, M.D., of Montreal. Cancer of the Larynx, by Hosmer A. Johnson, M.D., of Chicago. A Case of Recurring Laryngitis Hemorrhagica, by C. E. Bean, M.D., of St. Paul. A Case of Stenosis of the Larynx, treated by Divulsion and Systematic Dilatation, by Morris J. Asch, M.D., of New York. The Importance of Local Treatment in Diphtheria, by William Porter, M.D., of St. Louis.

Afternoon Session.—A Comparative Study of some of the Methods of Treatment best adapted to the Relief of Occlusion of the Posterior Nares, by Alexander W. MacCoy, M.D., of Philadelphia. Plaster-of-Paris Dressing for Fractures of the Nose, by J. W. Robertson, M.D., of Detroit. On the Etiology of Deflections of the Nasal Septum, by D. Bryson Delavan, M.D., of New York. Congenital Occlusion of the Nasal Passages, and its Successful Treatment by means of a Novel Surgical Procedure, with a practical demonstration of the Operation.

THE OFFICERS OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, elected at the recent annual meeting for the coming year, are as follows:

President.—Dr. I. E. Atkinson.

Vice-Presidents.—Dr. Charles H. Jones, Dr. James Carey Thomas.

Recording Secretary.—Dr. G. Lane Taneyhill.

Treasurer.—Dr. W. F. A. Kemp.

THE THIRTIETH ANNUAL MEETING OF THE MISSOURI STATE MEDICAL ASSOCIATION was held at Macon City, Mo., on May 10, 11, and 12, 1887. The meeting was highly satisfactory to the members present, a larger number participating, and a larger number of papers were read and discussed than at any previous meeting. The Association passed a resolution appropriating

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three hundred dollars to the International Medical Congress. It was decided to hold the thirty-first annual meeting at Kansas City, Mo.

THE MEDICAL SOCIETY OF NORTH CAROLINA held its thirty-fourth annual meeting at Charlotte on April 13th, and the following officers were elected for the ensuing year:

President.—Dr. D. T. Haigh, of Fayetteville.

Vice-Presidents.—Drs. W. T. Ennett, of Burgan; J. B. Dunn, of Raleigh; Thomas E. Anderson, of Statesville.

Secretary.—Dr. Julian M. Baker, of Tarboro.

Treasurer.—Dr. C. M. Poole, of Salisbury.

INTERNATIONAL CONGRESS ON INEBRIETY. — The Council of the English Society for the "Study and Cure of Inebriety," have completed arrangements for an International Medical Congress, to be held at Westminster Hall, London, July 5 and 6, 1887.

The object of this Congress is to present and discuss the problems of inebriety medically, and from a purely *scientific standpoint*, by the best authorities, thus laying the foundation for a broader and more exact study of this subject.

PASTEUR AND HIS INSTITUTE.—The members of the Committee of the Pasteur Institute have decided to refuse the site offered by the municipality, and to purchase a site beyond Montparnasse Station for 430,000 f. They have also agreed on plans for the erection of four buildings, to cost 600,000 f. About 1,000,000 f. will then remain available, representing a revenue of 40,000 f. This is inadequate, for the calculations made, not only for the treatment of rabies, but for fresh experiments and a laboratory, show that an income of 100,000 f. is necessary. The fund will, therefore, be kept open until this income has been secured. With devotion equalled only by the absence of ostentation, M. Pasteur has written a letter to the committee assigning to the institute the proceeds of his splenic fever treatment and industrial processes, which bring in 25,000 f. a year. This sum added to the one mentioned above of 40,000 f. makes a revenue of 65,000 f., leaving 35,000 f. still to be secured. It is sad to have to add that M. Pasteur himself is seriously unwell, and that his condition gives great uneasiness to those who love and admire him.—*Galignani's Messenger.*

DEATH OF LIEBERKÜHN.—Dr. Nathaniel Lieberkühn, Medical Privy Councillor and Professor of Anatomy in Marburg University, died recently at the age of sixty-five. He was the son of the discoverer of Lieberkühn's follicles, and was a disciple of Johannes Müller, and a fellow-student of Dubois Reymond, Helmholtz, Ludwig, and Virchow. His own researches, which were numerous, were mainly connected with development. He was formerly Prosector of Anatomy in Berlin.

RESULTS OF A PHYSICAL EXAMINATION FOR CADETS. —A remarkable showing is made by the result of the physical examination of candidates from the public schools for the appointment of a cadetship at the Naval Academy at Annapolis. The position was offered by Col. L. S. Bryce, member of Congress for the Seventh New York District, to the lads between fourteen and eighteen years of age, in the district, who should pass the best competitive examination; and, on the 29th of April, twelve youths presented themselves at the College of the City of New York for the trial. The physical examination was made by Drs. Stuyvesant F. Morris, of New York, and Shaeffer, of the Navy, and not one of the twelve was found to answer to the qualifications as regards physique required by the Government for admission to the Academy. Of the candidates, three were rejected for defective eyesight, and four for malformation of the chest or heart troubles, while one was under the minimum stature allowed.—*Boston Medical and Surgical Journal*, May 5, 1887.

THE LACTOCRITE.—The lactocrite, a new apparatus for testing milk, particularly with regard to its value for butter, is the invention of de Laval, also the inventor of the well-known centrifugal separator, which bears his name, and is designed to be used with the latter. The milk is first heated with its own bulk of strong acetic acid, to which five per cent. of strong sulphuric acid has been added. This treatment, continued for seven or eight minutes, suffices to set free the fat of the milk from its emulsionized state. A glass tube with a narrow neck, properly graduated, is then filled with the milk, placed in a suitable holder in a disk which is attached to the centrifugal separator, and the latter set in operation. A complete separation of the fat is then effected in the narrow neck of the tube, where the amount is read off. The instrument is designed to enable creameries using the centrifugal to test the quality of each patron's milk; and it appears to be well adapted to this purpose. Several tests of its accuracy have been made of late. Sexhlet, in the *Milch Zeitung* (xvi. 14), reports that he obtained by it results agreeing within 0.1 per cent. with those of his aërometric method. Sebelien (*Landw. Vers. Stat.*, xxxiii. 405) finds that, if all the directions are strictly observed, the results do not vary at most more than 0.1 per cent., and usually not over 0.05 per cent., from those of gravimetric analysis, but notes that these directions must be carefully followed. Faber (*Analyst*, xii. 6) obtained about the same results. Blythe (*Ibid.*, xii. 34) found in eleven trials a maximum error of 0.14 per cent., and an average error of 0.05 per cent.—*Science.*

PRACTICE OF MEDICINE BY AMERICAN PHYSICIANS IN FRANCE.—For some years past the native practitioners at French watering places and elsewhere have displayed a good deal of irritation at the success of the English and American medical men, who practically exclude them from the emoluments derived from attendance on the wealthy and invalid foreign visitors. This feeling has now taken a tangible form in the promulgation of a law which somewhat enhances the difficulty of obtaining the right to practise on French territory unless the doctorate of one or other faculties of medicine in France be first obtained, a proceeding of some time, difficulty, and expense, except to one who has lived for some years in the country. Hitherto, the English or American practitioner who desired to practise in France contented himself with obtaining a provisional license (*permis d'exercer*) which was practically perennial; or, at most, took the certificate of *officier de santé*, an inferior diploma, but one which enabled its holder to

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comply with the law. Until within the last few years, one or other of these *permis* were obtainable on fairly easy terms. Under the new law, however, no permits are to be granted other than those conferred by passing one or other of the legal entrances of the profession. Further, in order to prevent undue competition at the hands of men who might take the *officat de santé*, they are forbidden to practise in the chief towns of departments and arrondissements, and in cities of over 10,000 inhabitants. In all important surgical and obstetrical operations they are required to call in the assistance of a doctor of medicine.—*Medical Press.*

IMPORTANCE OF THE TEETH AS A MEANS OF IDENTIFICATION.—The occurrence of the Prince Imperial's death revived a question which has been somewhat neglected by lawyers and physicians, viz., the importance of the teeth as a means of identification of deceased persons. The late Prince Imperial had been so much disfigured that identification would have been extremely difficult but that the prince had had four small cavities in the first molar teeth filled with gold by Dr. Rottenstein, of Paris, and had met with a slight accident in April, 1876, from a blow on the front teeth, which had made it necessary to fill the teeth a little in order to smooth the enamel. These constituted signs which are unalterable even by ages; and, as careful dentists usually keep a record of such operations, they afford a means of identification which is unerring, and which, as in the present instance, was of great value, and might, under certain circumstances, be of the highest importance.—*American Journal of Dental Science*, March, 1887.

OBITUARY RECORD.—Died of pneumonia, on Teusday, May 3d, in the fifty-seventh year of his age, WILSON FOX, M.D., F.R.C.P., Physician-in-ordinary to the Queen, and Holme Professor of Clinical Medicine at University College, London. Dr. Fox was well known on this side of the Atlantic by his numerous and valuable contributions to medical science, and particularly by his research into the nature of tubercle, to which he devoted the best energies of his life. By his death the London profession loses one of its most distinguished members.

NOTES AND QUERIES.

THE CZERNY-LEMBERT SUTURE.

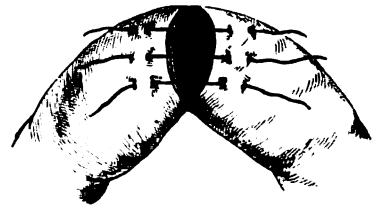
To the Editor of THE MEDICAL NEWS,

SIR: Will you kindly publish in the columns of THE NEWS, the *rationale* of the "Czerny-Lembert suture?" I have never seen the stitch, and all the practitioners on this portion of the earth's surface are as ignorant as myself, on this subject.

Truly,
S. C. GRAVES, M.D.

GRAND RAPIDS, MICH., May 10, 1887

The Czerny-Lembert suture is applied in two rows. The first or inner row includes the mucous membrane only, and is applied in the form of a series of simple suture points. The second or outer row includes the peritoneum only, and is applied in the form of Lembert's Suture (see fig.), in which the needle is first made to pick up a fold of peritoneum about one line in width and about three lines from the edge of the wound; a similar fold is then picked up at a corresponding point on the other side of the wound, and then the thread has to be drawn through the two folds and thus carried across the incision; the knot may be tied in the ordinary way. The stitches should not be more than a line apart, and the whole number required must be introduced before any are tightened: By this suture the serous surfaces are turned in toward the lumen of the viscus and are brought into close contact.



Lembert's suture including peritoneal coat alone.

Of course, when the outer series of sutures are applied the inner row, including the mucous membrane, is entirely covered in.

This suture is employed in closing intestinal wounds, and is particularly valuable in bringing the two serous surfaces of the wound in close apposition, which is necessary for union. The inner row of sutures, advised by Czerny, affords additional security.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 10 TO MAY 16, 1887.

ALEXANDER, C. T., *Lieutenant-Colonel and Surgeon.*—Granted leave of absence for four months, with permission to go beyond the sea, to take effect May 23, 1887.

HARVEY, P. F., *Captain and Assistant Surgeon.*—Granted leave of absence for four months, with permission to go beyond the sea, to take effect June 10, 1887.—*S. O. 105, A. G. O.*, May 7, 1887.

BIART, VICTOR, *Captain and Assistant Surgeon.*—Ordered for examination by Army Retiring Board at Fort Leavenworth, Kansas.—*S. O. 107, A. G. O.*, May 10, 1887.

ELBREY, F. W., *Captain and Assistant Surgeon.*—Ordered for examination by Army Retiring Board at Washington, D. C.—*S. O. 109, A. G. O.*, May 12, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 14, 1887.

GRAVATH, C. M., *Surgeon.*—Detached from the U. S. Steamer "Michigan."

LUMSDEN, G. P., *Passed Assistant Surgeon.*—Ordered to the U. S. Steamer "Michigan."

ASHBRIDGE, RICHARD, *Passed Assistant Surgeon.*—Detached from the Naval Academy and ordered to the Practice Ship "Constellation."

STREETS, THOS. H., *Passed Assistant Surgeon.*—Promoted to Surgeon.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MAY 14, 1887.

FESSENDEN, C. S. D., *Surgeon.*—Detailed as Chairman of Board for Physical Examination of Cadets, Revenue Marine Service, May 13, 1887.

STONER, G. W., *Surgeon.*—To proceed to Delaware Breakwater, as Inspector, and to New York and Philadelphia, to inspect unserviceable property, May 12, 1887.

IRWIN, FAIRFAX, *Passed Assistant Surgeon.*—Detailed as Recorder of Board for Physical Examination of Cadets, Revenue Marine Service, May 13, 1887.

FATTIE, J. B, *Assistant Surgeon.*—Relieved from duty at Baltimore, Md.; ordered to Marine Hospital, St. Louis, Mo., May 13, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, MAY 28, 1887. No. 22.

ORIGINAL ARTICLES.

SUPRAPUBIC CYSTOTOMY.

ITS TECHNIQUE ILLUSTRATED BY ANATOMICAL PREPARATIONS.[1]

BY FREDERIC S. DENNIS, M.D.,

PROFESSOR OF SURGERY IN BELLEVUE HOSPITAL MEDICAL COLLEGE, NEW YORK.

THE revival of suprapubic cystotomy awakes great interest among surgeons throughout the civilized world. In former years the high operation was reserved for large calculi which could not be removed by any of the perineal operations. The rate of mortality was so high that the operation was considered justifiable only in extreme cases. At the present time, through the influence of the writings and demonstrations of Garson and Petersen, suprapubic cystotomy has become a recognized operation for the removal of calculi of all sizes, and of all descriptions, and under all conditions.

In addition to the removal of stone, the high operation has opened up a new field to the practical surgeon. Vesical tumors and ruptures of the bladder are now operated upon where heretofore no operation was performed. This great change in operative procedure has been brought about by anatomical demonstrations and by experimental work upon the cadaver. The results of these experiments have proved the safety of exploration of the bladder by the sectio alta. It is interesting to observe in this connection the different stages through which the operation has passed, from the earliest recorded dates down to the present time.

In studying the history of the operation in chronological order, one is forcibly impressed with the fact that the present complete and perfect method of performing epicystotomy is not due to the entire work of any individual. The operation as it is now performed, according to the technique recommended by Garson and Petersen, has been the result of a gradual growth and steady development. The work of the anatomist has been supplemented by the surgeon. Practical applications have been made of knowledge obtained by experimental work. Suprapubic cystotomy of the present century differs from the suprapubic cystotomy of the sixteenth century only in the perfection and completion of the details. The same general principles were formerly recognized, as I shall endeavor to point out, and it has been through the improvement of these different methods that the present complete operation has been perfected. In other words, improvements in the technique, rather than the introduction of any new principle, have given us this eminently satisfactory operation. I shall endeavor to prove that the suprapubic operation of to-day owes its parentage to the original operation.

In reading the early description of this operation, it is obvious that the great dangers were fully recognized, but the exact way in which to avert these dangers was not understood. The prevention of injury to the peritoneum and the avoidance of urinary infiltration were aimed at in the early operations, but the means to bring about immunity from these special dangers were crude and undeveloped. In the modern high operation the peritoneum is protected and urinary infiltration avoided by forcing the bladder upward by conjoined distention of the rectum and bladder. The additional safeguard to the danger of urinary infiltration is offered by the employment of an antiseptic fluid for distending the bladder, instead of ordinary fluid. The principle of lifting the bladder upward was crudely demonstrated by the surgeon introducing his finger into the rectum and pushing up the bladder. The distention of the bladder was made by injecting fluid into the viscus. Hilanus, in the seventeenth century, recommended the use of the finger in the rectum for the purpose of lifting up the bladder. The accomplishment of this object is now secured by the use of the colpeurynter in the rectum and by the injection of an antiseptic fluid into the bladder. Douglas, Cheselden, and other surgeons practised a certain amount of vesical distention. The principle recognized in the old and the new operation is identical, but the means employed to carry out the principle are widely different. Our forefathers have handed down to us a principle in the high operation which they fully recognized, and which they tried to carry into practice. They were unable to meet practically all the emergencies of the case. Our contemporaries have beautifully perfected and carried into execution the same principle by a method which to-day enables the surgeon to operate with comparative ease and safety.

A brief historical sketch of the suprapubic operation is pertinent, in order to appreciate the important changes through which this operation has passed. There is no authentic description of the suprapubic method until it was performed by Pierre Franco in the year 1561. Franco performed the operation upon a boy, but did not commend it to the profession. Rousset, in 1581, wrote a careful description of the operation, and highly commended it to the profession. Rousset's paper deals with the operation from a theoretical point of view, and King Henry VIII. promised him several criminals for experimental work in order to demonstrate the operation in a practical way. The king died, and Rousset was unable to prove the value of his suggestion by any demonstration upon the live human body. The operation now fell into disuse until 1635, when

[1] Read before the American Surgical Association May 11, 1887.

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Mercier advocated it in a thesis before the Faculty of Medicine in Paris. Bonnet performed the operation with success in 1681 at the Hotel Dieu. Proby, in 1694, explored the bladder by the high operation for the removal either of a calculus or a foreign body. Historians do not agree in their accounts as to the object of the operation. Such is the brief historical sketch of this formidable operation until John Douglas, of London, reported four successful cases in 1723. Cheselden, in this same year, published a paper upon the operation, and afterward became its great champion. In 1727 Douglas had performed the operation nine times, with but one death; and Cheselden six times, with but one death. Thornill had twelve cases, and only two of them died. McGill had five cases.

At this epoch, when the results were comparatively brilliant, the introduction of the infrapubic operation caused the suprapubic operation to fall into disrepute; not on account of its failures, but owing to the great *éclat* with which the perineal operations were received. Cheselden improved and developed the perineal method of the monk Frère Jacques, who began his operations in 1695, and of Rau, the Holland surgeon, and Cheselden then became the champion of the perineal operation, as he had been of the high operation. The suprapubic method was but little practised until Frère Comes revived the operation, and in 1779 published a description of his own method of performing suprapubic lithotomy. He made an opening in the membranous portion of the urethra, through the perineum (boutonnière), for the purpose of introducing a sound with a stylet (sonde á dard) in order to pierce the bladder just behind the symphysis pubis.

Since the time of Frère Comes the suprapubic operation has been seldom employed, until the introduction and practical application of Garson's and Petersen's experiments. From its earliest history to 1851 Gunther could only collect 260 cases. From 1850 to 1879 there were but few cases reported. From 1879 to the present time the suprapubic operation has been performed by many surgeons, and with such uniform success as to attract the undivided attention of surgeons throughout the civilized world. Reports of the brilliant success which has attended this modified suprapubic operation come pouring in from every land, and the time has now arrived when the shackles which have hitherto trammelled this operation shall be thrown aside and the results critically examined in an impartial and honest spirit.

The prophetic words of Dr. Roberts, uttered at a former meeting of this distinguished Association, in which he stated "that within ten years the suprapubic operation will be the operation adopted for all cases of stone that are not treated by Bigelow's operation," are now almost realized. I would venture to remark that the time is not far distant when there will be but practically two operations for stone in the bladder, the suprapubic lithotomy and litholapaxy. If future experience demonstrates that a return of calculus occurs in a fair percentage of the cases after lithotrity from débris left behind, and that the mortality of the suprapubic is reduced to a figure equal to or less than perineal lithotomy, then suprapubic lithotomy, with its special advantages, will be the recognized operation of the day. If it can be shown that the mortality in the suprapubic operation is due in great part to causes which may be prevented in these days of antiseptic surgery, there is no doubt as to the future of the operation. It is simple in its technique, safe in its execution, radical in its results, free from injury to the reproductive organs, curative in its application, and finally brilliant in its statistics. With all these advantages time will soon determine the place which this operation is destined to take among the recognized surgical operations. On the other hand, the many and serious accidents which follow the lateral operation are avoided.

The technique of the operation of opening the bladder by the suprapubic method is worthy of consideration. A few days previous to the operation the patient can be put upon a milk diet, and the day previous to the operation the bowels should be freely moved by a dose of castor-oil, and the morning of the operation an enema should be given, so as to empty the rectum for the introduction of the rubber bag. The hair should be shaved from the pubes and the parts should be thoroughly washed and scrubbed and irrigated with a solution of bichloride of mercury or carbolic acid. This ablution should be repeated at the time of the operation. The patient being fully under the influence of ether is prepared for the operation. The surgeon should first introduce the India-rubber bag into the rectum. The bag should be oiled and should be carried well up the rectum so as to be above the internal sphincter. Into the rubber bag are injected, slowly, twelve ounces of warm water; at least I would recommend this quantity as the standard, and from it the amount can be slightly increased or diminished according to individual circumstances. Instead of water, air can be used to inflate the bag, as suggested first by Milliot in 1875, at Lyons; but the water for obvious reasons is preferable. If the patient is a boy, instead of an adult, less than twelve ounces of warm water must be injected. The surgeon should bear in mind the danger of rupture of the rectum, especially in elderly people and young boys, and exercise judgment in regard to the proper quantity of water to be injected in any given case. Serious mischief has followed the careless use of the rubber bag during dilatation of the rectum. In one case, where eighteen ounces were used, the rectum was lacerated.

The next step in the preparation of the pelvic viscera for the suprapubic operation is the distention of the bladder. Here again the surgeon must be very cautious lest he inject too great a quantity of water. A silver catheter should be passed and all the urine drawn, and then into the empty bladder about half the quantity of water should be carefully injected that was used to distend the rectum. The quantity should be about six ounces; at least this amount might be taken as a safe standard and variations made according to individual circumstances. The liquid should be antiseptic, and the best is

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Thiersch's solution, which contains boro salicylic acid. The solution should be slowly injected and the surgeon should notice the ascent of the bladder above the pubes. He should also observe the amount of resistance offered to his hand during the distention of the bladder. The same caution here is advised as during the dilatation of the rectum; because any undue force might rupture the bladder, as has happened in several experiments. An India-rubber tubing can be passed around the penis after the catheter has been removed to prevent the escape of the antiseptic fluid which has just been injected for the purpose of distending the bladder. If the assistant's finger is placed over the open mouth of the silver catheter, or, better, a small plug into the end of the catheter, the escape of the fluid will be prevented, and the silver catheter will also serve as a guide to cut upon when the bladder is exposed. This use of the catheter avoids the necessity of withdrawing the instrument and of reintroducing another into the bladder to serve as a guide to cut upon after the viscus is exposed in the wound. The distention of the bladder after dilatation of the rectum increases the distance nearly three inches between the symphysis pubis and the anterior cul-de-sac or pubo-vesical fold of the peritoneum. The membranous and prostatic portions of the urethra are stretched, as has been shown by Sir Henry Thompson.

The patient being placed upon his back with his pelvis elevated so as to cause the abdominal viscera to gravitate toward the diaphragm, is now ready for the operation. The surgeon stands on the left side of the patient and makes an incision three to four inches in length from below, beginning at the pubes and extending upward exactly in the median line of the body. The skin, fasciæ, and cellular tissue having been divided, the linea alba is now exposed. The surgeon cuts along the raphe upon a grooved director between the pyramidales and recti muscles, dividing also the transversalis fasciæ. It sometimes happens that the pyramidalis muscle is exposed by cutting the sheath of the rectus instead of going exactly through the linea alba, and the operator must remember that there is no posterior sheath to the pyramidalis but only the transversalis fascia. The fascia must now be carefully divided and the surgeon next exposes a small space filled with fat and loose connective tissue. Before disturbing this tissue a retractor can be placed in the wound, and this retractor, which is made like an eye-speculum, holds the edges of the wound apart and enables the surgeon to command a good view of the parts and to work with greater facility. The use of the retractor suggested itself to me by its employment in the operation for tracheotomy, where I have found the eye-speculum of great help in holding open the wound while making the deep incisions in order to open the trachea.

The fingers of the surgeon should now be introduced into the wound where he can feel the distended bladder. The loose connective and fatty tissue overlying the bladder should be carefully separated with the handle of the scalpel, then the upper surface of the bladder is brought fully into view with its veins and muscular fasciculi showing on the surface. The surgeon should carefully avoid tearing up the cellulo-adipose connective tissue between the pubes and the neck of the bladder, as this might afford an opportunity for urinary infiltration. The point of the silver catheter can be felt within the bladder upon its anterior wall, and this can be relied upon as a guide.

If any uncertainty exists as to whether the peritoneum is out of danger, the surgeon should examine to see if there are two sliding surfaces lying over the beak of the catheter, and if there is a distinct transverse raphe over the summit of the bladder. If only the wall of the bladder is present the surgeon can seize the viscus with two delicate tenacula, and having observed that all hemorrhage and oozing have ceased, open the bladder between the two tenacula and over the point of the catheter.

The walls of the bladder, especially the mucous membrane, are often very much hypertrophied, as a result of the irritation from the stone. The small opening in the bladder is now enlarged by a probe-pointed bistoury in the direction downward toward the symphysis pubis; but never below toward the neck of the bladder and urethra. This last incision would be fraught with great danger. If the object of the operation is the removal of a tumor requiring a free exposure of the interior of the bladder, a stitch is taken in the bladder wall on each side of the incision, and the wound held apart by the suture. The threads also prevent the dipping down of the bladder after the fluid has escaped. The index finger, first dipped into a warm antiseptic solution, is now carried into the bladder and the stone felt, and with the assistance of the other index finger carefully lifted out of the bladder. Instead of the fingers the lithotomy forceps can be employed. If the stone is very large it can be crushed before removal. If there is any difficulty in seizing and removing the calculus, the rubber bag can be emptied and removed and the index finger of the assistant introduced into the rectum and the stone pushed upward so that the surgeon can easily grasp it.

The bladder can now be thoroughly washed out and a soft flexible rubber catheter introduced through the urethra for perineal drainage. The catheter must be removed in forty-eight hours, or its presence will excite a traumatic urethritis. This complication occurred in a case last winter, in which I left the catheter in the bladder too long. An interesting clinical fact in connection with this case was the certainty of the diagnosis as to the traumatic and not specific origin of the discharge. Dr. Seymour Houghton, House Surgeon in Bellevue Hospital, examined very carefully the pus in the Carnegie laboratory, under the microscope for the presence of Neisser's gonococci; but the staining failed after many attempts to show the special germ of this disease. I have seen a boy of ten years and a girl of eight years and also a boy of six years, all affected with gonorrhœa. The first two patients denied any knowledge as to the origin of the trouble; but when the gonococci were found and they were directly charged with it, they confessed. This complication of a traumatic urethritis serves as an important lesson to remind the surgeon not to leave

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the catheter in over two days. The catheter in this case was left in four or six days, but was aseptically clean. It was a desire to incur no risks of infiltration on account of the unusual size of the wound in the bladder that induced me to allow the catheter to remain longer than it was necessary.

In this connection might be mentioned the subject of perineal drainage after the suprapubic operation. Some surgeons provide drainage through the perineum by making an opening to the membranous portion of the urethra (the boutonnière) for the purpose of introducing a drainage tube into the bladder by this opening. This seems an unnecessary procedure, for the urethra with a rubber catheter introduced into it, will provide a natural drainage without incurring all the risks incident to wounding the perineum and urethra. Such a procedure exposes the patient to an additional danger of urinary infiltration, and to the danger of the formation of a traumatic stricture and to hemorrhage; and possibly to additional danger of septic infection. The urethra is the natural channel through which to drain, and the opening above can also be used for antiseptic siphon drainage and irrigation, as suggested by Sir Joseph Lister. Hence the perineal incision is unnecessary; besides, it adds the mortality of the median operation to that of the suprapubic. The very object of the high operation is defeated when a perineal wound is made.

The patient should lie with his shoulders elevated, or upon his side, and in this way better drainage is thus secured. Trendelenburg recommends the abdominal position for drainage after the operation. When this is practical it is a most excellent method to establish perfect drainage.

Another question in the technique of the operation is the management of the wound in the bladder. Here an honest diversity of opinion exists among surgeons, and it is an important point for discussion in connection with the high operation. From a careful research into the meagre literature of the suprapubic operation in its modified form, and also from a limited practical experience, I feel convinced that the bladder wound in the majority of cases should be left open. If the bladder in an adult is sewed the wound is most likely to reopen on account of the pathological condition of the bladder wall and the mucous membrane. In chronic cystitis there is thickening of the bladder wall and alteration in the mucous membrane. A failure to secure primary union is quite likely, and if the wound reopens the dangers of infiltration of urine and septicæmia are greatly increased. In twenty-five cases collected by Schmitz with a view to throwing light upon this point six of the patients died, which gives a mortality of twenty-four per cent., and in only four cases did primary intention follow. If the wound in the bladder is stitched a natural provision for drainage is sacrificed, and on account of the unhealthy condition of the mucous membrane from a chronic cystitis accompanied by thickening of the entire bladder wall the wound is not likely to heal by primary intention. The wound opens and sloughs occur and the result is extremely unsatisfactory.

While condemning the practice of suturing the bladder wound after removal of a calculus, the same plan is not to be followed in certain other conditions. In rupture of the bladder, for example, the wound should be sewed, but here the conditions of the mucous membrane and the walls of the bladder are altogether different. Primary intention is more likely to be secured in such a case where it would be useless to try under other conditions. If the bladder wound after a high operation for stone is left open to heal by granulation, it will permit the surgeon to treat intelligently a chronic cystitis. The wound in the skin can be partially closed and a large rubber drainage tube introduced into the bladder. After a few days the urine will pass the natural way and any little overflow is cared for by the upper drainage tube.

In young children where suturing the bladder is likely to be followed by primary intention the difficulties of the operation are very great on account of the extreme thinness of the bladder wall and the small abdominal wound. An attempt to close the vesical wound therefore prolongs the operation unnecessarily and should not be attempted unless the bladder is fairly healthy, and the patient is in good bodily condition at the time of the operation. Lembert's sutures in close apposition should be employed and the mucous coat must not be included. The bladder must be carefully manipulated during the sewing so as to prevent a cellulitis. After the wound is stitched an injection of an antiseptic fluid should be carefully made into the bladder to ascertain if there is any leakage. If the bladder is properly sewed no permanent drainage is indicated, but the soft catheter can be passed several times during the first twenty-four hours after the operation, and occasionally after the first day, so as to prevent any distention. The wound heals by primary intention and this occupies only a short time.

The abdominal wound is also closed and a small drainage tube is inserted into the lower angle of the wound. Von Bergmann sutures the bladder and packs the abdominal wound with iodoform gauze for forty-eight hours and thus prevents suppuration. He then closes the abdominal wound in two days after removing the gauze. Schmitz (Langenbeck's *Archiv*, vol. xxxiii., 1886) reports thirty cases of suture of the bladder in children with a mortality of nearly seven per cent. In the thirty cases of suture about half of these cases resulted in primary union of the wound. If children and adult cases are grouped it is estimated that in two-thirds of the cases the bladder wound reopens.

A few days after the operation the patient can sit up in bed and an uninterrupted and speedy recovery should take place. Prof. Annandale recommends the introduction of a lithotrite into the bladder in order to seize the stone and then to cut upon the lithotrite as a guide and remove the stone. A rubber catheter is introduced into the blades of the lithotrite through the abdominal wound and the instrument withdrawn with the rubber catheter. The drainage through the perineum and also in the wound above is the same as in the method already described.

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The special indications for exploration of the bladder by the suprapubic method are found:

First. In cases of lithotomy for large hard calculi; also in lithotomy occurring in a patient suffering from paraplegia, a contracted pelvis, perineal tumors, encysted calculi, ankylosis of the hip, hemorrhoids, or great obesity.

Second. For the removal of certain foreign bodies as hairpins, bodkin-needles, etc., for the treatment of chronic cystitis, and for the operation of calculi in the female.

Third. In lithotomy occurring in a patient with greatly enlarged prostate, or with fibroma of the prostate, or in calculi found in diverticula behind the prostate.

Fourth. For the excision of tumors of the bladder.

Fifth. For rupture of the bladder.

The special advantages which the suprapubic operation offers may be enumerated as follows:

First The safe removal of large hard stones which cannot be removed by any of the other methods.

Second. The avoidance of perineal hemorrhage, of urinary infiltration, of perineal fistula, of laceration of the rectum and neck of bladder, the prevention of traumatic stricture and cystic hemorrhage. The avoidance of any interference with the genital apparatus.

Third. The prevention of a vesico-vaginal fistula in young women, or of permanent incontinence of urine in aged women.

Fourth. The safest operation in all forms of renal disease, and the only means of saving life in rupture of bladder.

Fifth. The tendency of recurrence of stone is much less than by lithotrity.

Sixth. Its extreme simplicity, its present reduced rate of mortality, its freedom from danger during its execution, and its safety for the general practitioner in comparison with the perineal operations or lithotrity.

I have collected one hundred and twenty-four cases of the suprapubic operation for the removal of stone since 1879.[1] I have collated all the cases that I could find in medical journals and some cases which have as yet never been published. The influence of antiseptics, and of the rectal rubber-bag together with vesical distention, is apparent when the cases are carefully examined. The death-rate until 1879 was high, since it reached the average of about twenty-five to thirty per cent., but owing to the experiments of Garson and Petersen that mortality has been greatly reduced.

There are one hundred and twenty-four cases. There are, *in toto*, eighteen deaths. This gives a gross mortality of about fourteen per cent. Of these eighteen deaths, the following seven can be, with justice, eliminated from the list in estimating the rate of mortality:

1. Belfield. Corrosive sublimate poisoning.
2. Briggs. Patient was moribund at the time of the operation, and was suffering from suppression of urine before the operation. The operation was performed against the advice of the surgeon, and at the special request of the mother of the child. The conditions were necessarily fatal before any attempt was made to remove the stone.
3. Küster. A median operation was first performed to extract a piece of catheter. He was unable to remove the foreign body, and then performed a suprapubic cystotomy.
4. Martin. Recovery from operation; but patient died three months afterward.
5. Roberts. Recovery from operation. Patient had a gastric ulcer, and died two months after from perforation of the stomach.
6. Rivington. Recovery from operation. Patient died three months after from diarrhœa and a cystitis.
7. Terrillon. Patient died from bronchitis eight days after operation. Autopsy showed that the bladder was healthy—wound aseptic, and nearly healed,

There are eleven deaths, which can be directly ascribed to the operation itself. This gives one death in about eleven cases, or a mortality of about nine per cent., for the removal of stone by suprapubic cystotomy.

The mortality in the lateral operation, according to Sir Henry Thompson, is about one in every eight cases, or, in other words, over twelve per cent.

I am aware of the fact that objection may be raised to taking Sir Henry Thompson's statistics on lateral lithotomy; because other surgeons have published better results. Their experience, however, is not so great, nor is their number so large. In Sir Henry Thompson's cases lateral lithotomy was reserved for cases unsuitable for crushing. I will quote the statistics of other surgeons before any comparison is made.

Freyer reports one hundred and forty-three cases, without a death. Zelt reports one hundred and six cases, with three deaths, or a rate of mortality less than three per cent. Werewkin reports one hundred and forty-seven cases, with a mortality of six per cent. Hensinger reports two hundred and twenty-two cases, with a mortality of nearly seven per cent. Ebermann reports a mortality of fourteen per cent. Skinnisen reports one hundred and fifty-four cases, with seven deaths, or a rate of mortality of about four and a half per cent.

This great difference in the mortality of the lateral operation affords room for much conjecture as to its cause.

In lithotrity Sir Henry Thompson's last statistics show a death-rate of about six per cent. The Norwich Hospital records show a death-rate of over ten per cent.

In litholapaxy Dr. Freyer reports one hundred and eight cases, with a death-rate of nearly four per cent.; Keegan fifty-eight cases, with two deaths, or a rate of mortality of about three and a half per cent. Gross collected one hundred and eighty cases, with four deaths, or a rate of mortality of about three per cent.

The rate of mortality for the suprapubic operation performed with its recent modifications compares favorably with perineal lithotomy, and also with litholapaxy, when the stone is over an ounce. In addition to a favorable comparison, in regard to the rate of mortality in litholapaxy in large stones, the

[1] [The author has collected all the cases and placed them in an alphabetical table in which all the facts in connection with each case are given. Space will not permit the publication of the table in full, though it is one of great value, and will appear in full in the Transactions of the American Surgical Association.—EDITOR.]

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lecular oxidation in the protoplasm of nervous tissues. These are his words, but such speculations will be of little use to us in explaining morbid wakefulness, and whether or not the direct cause of sleep resides in a peculiarity of the nerve tissue itself, or in the changes of blood supply, it will be more important for us to cling to the indisputable facts observed and advanced by Mosso,[1] Burkhardt,[2] Meynert,[3] and others. Mosso proved, by direct observation, beyond the shadow of a doubt, that emotional or intellectual activity increased the activity of cerebral circulation, and, which is an important fact for us, that there was a correspondingly deficient supply in other parts of the body, particularly in the extremities.[4] I shall have occasion to show that in several cases of very troublesome insomnia the peripheral circulation was seriously at fault.

Putting it broadly, sleep is a vasomotor affair; insomnia a vasomotor disturbance. But the rub comes in when we attempt to decide whether the vasomotor innervation of the cerebral bloodvessels is an extra-cerebral function, or whether there be not in the brain itself at least one, perhaps not the *only*, vasomotor regulator. If so, the trouble is worse confounded, and this inter-relation and interdependence of vasomotor and cerebral function seriously complicate matters. Many of us are, I think, hampered by the idea that the supply of blood is relatively and absolutely so plentiful in any one part or organ, that a change in the blood supply of that part or organ cannot seriously interfere with the blood supply of a distant organ. If the quantity of blood alone were to be considered, such changes would not be of serious import, but we must not forget that anæmia or hyperæmia of an organ has, or, I will say, may have an important influence upon pressure of circulation in other distant parts. At all events, I am not willing to believe that the conditions I have observed in several patients were entirely accidental, although the observations were made and noted at a time when I was not concerned with any theory on this head.

The case which I now relate will show what a fickle thing sleep is, and how it may be seriously influenced by apparently trivial causes.

A lady, aged forty, the mother of four children; married at a very early age, and has always had irregular menstruation, which very often is extremely scanty. The patient is a stout person with feeble pulse and cold extremities, who suffers by turns from sudden flushing of the face, light asthmatic attacks,[5] and occasional severe headaches. The patient is a lady of leisure, very much averse to severe physical exercise, and altogether too fond of a carriage. Heart sounds are weak, probably from deposit of fat about the heart; heart beat not intermittent; no audible murmurs. All abdominal and thoracic viscera healthy. Urine free from albumen and sugar. For the past ten years patient has had but the one serious trouble—insomnia. According to the account which was first given me, over two years ago, she had protracted spells of sleeplessness, during which time she would have great difficulty in falling asleep, and if she fell asleep, would at best sleep but one or two hours. This account is substantiated by the statements of her husband and of her maid. She had been thoroughly soaked with bromides, chloral, etc., with the result of procuring a few nights' good sleep, to be followed by many more of distressing insomnia. The time of menstruation was the most critical period. If the menstrual flow was free, sleep would be tolerably good; if the flow was scanty, insomnia would be certain to set in during the time of menstruation, and for at least eight or fourteen days to follow. In the course of the time that the patient has been under my treatment, I have had ample opportunity to verify this exact succession of events. During these periods of insomnia galvanism to head, lukewarm ablutions of the entire body before retiring, application of mustard to nape of neck and upper spine, the exhibition of urethan or paraldehyde: each agent would be followed by temporary relief, but no permanent cure was to be effected in this way. During the past few summers drinking the waters of Marienbad or Carlsbad, brought the greatest relief; and here sleep was induced, I am certain not so much by the effects of the water upon a mild form of chronic constipation, and the reduction of her superfluous adipose, as by the regular exercise she was compelled to take, and the bland diet she adhered to while under treatment at these places. As she returned to this city and again fell into her old habits, sleeplessness would return with unerring certainty. Like so many patients, this one cannot be impressed with the importance of obeying strict rules as to exercise and diet, and is much more deeply impressed by the exhibition of narcotic drugs.

No case that I have had has been so rebellious to treatment, and none has so deeply impressed me with the intimate relation existing between disturbances in peripheral circulation and the condition of insomnia. The irregularities of peripheral circulation are evidenced by the cold, clammy hands, the cold feet, and the scanty uterine flow at time of menstruation. It is not a difficult matter to produce a single or a few nights' sleep in patients even of this description, chloral, urethan, paraldehyde, hypnone each might bring this about; and, indeed, it is to be regretted that this is the case, for upon the withdrawal of these agents, the patient is, as a rule, much worse. You can in this way avoid an otherwise sleepless night, but you cannot and do not cure insomnia. To do this, you must strike at the root of the trouble, and endeavor to better the condition of the circulation.

If anæmia of the brain is conducive to sleep,[1] general anæmia is, on the other hand, a fruitful source of insomnia. These cases are so common that it appears quite superfluous to cite examples in support of this view. A short account of two will answer our purpose.

Mrs. R., æt. thirty-one; married twelve years; no children; has always been nervous, and is easily excitable, but there is no history of hysterical attacks of any sort. Considerable anæmia and very distressing palpitation, with occasional attacks of precordial fear at

[1] Mosso: Abstract of his article in Brain, vol. iv. p. 100.

[2] Quoted by Meynert.

[3] Psychiatry, cf. chapter on Nutrition of Brain.

[4] Mosso, loc. cit., p. 105: "In sleep there occurs a dilatation of the vessels of the extremities which can be measured in the forearm by the plethosphygmograph. It corresponds with a relaxation of the vascular walls. Every excitation from without causes a contraction of the vessels of the forearm and a subsequent increase of the blood pressure, causing a larger flow of blood to the brain."

[5] No evidence of gout in this case. Duckworth (Brain, vol. iv. p. 145) referred to asthmatic attacks in cases of gouty insomnia.

[1] A fact not wholly proved.

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bed-time. Menstruation has always been irregular, occurring, as a rule, every five or six weeks. Constipation the rule. Is a great sufferer from headaches of the paralytic migraine type, and from insomnia. The two conditions are sometimes coincident, but not necessarily so. On tonic treatment with iron, gentian, and strychnia, the use of caffeine and ergot for the migraine, and, above all, by closely following out a prescribed regime as regards exercise and diet, the patient has been greatly relieved in the course of two months' treatment, and has been sleeping well for the last two months.

Another, and similar case, is that of Mrs. S. G., æt. forty, mother of four children, who, according to her own and husband's statement, has been a severe sufferer from insomnia and headaches for years. Every form of excitement, of which she has had not a little, would be followed by insomnia and headaches; during such periods she would sleep but an hour each night. Headaches, if present, would keep her awake, but when entirely free from these she spends many sleepless nights. The patient has been very much reduced in strength by chronic gastro-intestinal trouble, with alternate diarrhœa and constipation. Marked anæmia, no cardiac mischief, pulse weak but regular. Urine free from albumen, no sugar; but heavy deposits of urates. In this case, which is still under treatment, marked amelioration has been effected, first and foremost, I think, by the checking of the intestinal catarrh through the use of naphthalin, the pursuit of a non-irritating, nutritious diet, with alkaline waters, and the taking of regular active exercise.

I do not wish to convey the impression that to my thinking all cases of insomnia have the same causation, and how mysterious the cause sometimes is, is frequently brought home to me by a patient whom I see every now and then, a man, æt. fifty-five, very thin, and slightly anæmic, a hard worker in his day, and now a man of leisure, who goes to bed regularly at eleven, to wake up again at two or two-thirty in the night, who then walks the floor until morning, or sits at the window in an arm-chair. For at least six years the man has passed every single night in this way. He does not sleep during the day, the functions of all his organs are perfect; his appetite fair, and his spirits surprisingly good. He was benefited for a time by nocturnal applications of galvanism to the head and by general faradization, but these soon lost their effect; every hypnotic is exciting, and one could scarcely prescribe a stricter diet, more exercise, and a more regular mode of life than he now observes.

From some of these cases I have just mentioned and a number of others, I have been led to recognize the intimate relationship between certain forms of headache and insomnia. In some headache and sleeplessness were coincident, in others there was an alternating relationship between the two conditions.

On looking over my cases of migraine associated with insomnia, I find that the migraine has been of the paralytic type, and that if sleep could by some means be secured the headache would disappear from that time onward. In cases of spastic migraine I have had patients complain of insomnia, but my notes do not show that this insomnia occurred at or about the time of an attack of migraine. Here is a case in point.

F. M., æt. thirty-three, merchant, unmarried; fond of the good things in this world, but not given to troubling himself or exerting himself in any way, has been a sufferer from severe migraine ever since he was five years old. Attacks come on at irregular periods. My first acquaintance with the patient was during one of his attacks which was of a distinctly paralytic type—face flushed, pupils small, etc. These attacks are accompanied, as a rule, by sleeplessness, which the patient does not think is to be attributed to the severity of the headache. He had a rather bloated look at first, and was somewhat gluttonous in appearance.

I insisted on an entire change in his mode of life, compelled him to take active exercise, ride, swing dumb-bells, etc.; reduced his diet, and treated him with galvanization to the head. Patient has been free from migraine and insomnia for three months. Galvanism had a very pronounced influence for good upon his headaches, and his was one of those cases which do well under antipyrin. (I may say, incidentally, that, after two fifteen-grain doses of antipyrin, his headache disappeared, and he fell into a sleep lasting ten hours. I am not ready to pronounce antipyrin a hypnotic, but in insomnia associated with migraine I am inclined to think, from my experience in this and two other cases of paralytic migraine, that it kills two birds with one stone.)

I have had proof in still another way of this same relation: without any preconceived notions, except such as were suggested by the general condition of the individual patient, I find, on referring to my notes, that the same form of treatment which has been successful in a number of cases of insomnia has been successful in most of the cases of migraine with which I have had to cope. Until I have good reason to think otherwise, I shall for therapeutic reasons look upon migraine and insomnia as vaso-motor disturbances.[1]

As for the treatment of cases of functional insomnia, I would suggest, as the result of my experience with twenty-four recently treated cases[2] of functional insomnia, that if it be due to mental overwork, or other exhausting causes, these be first removed. Pronounced anæmia and general neurasthenic symptoms should be treated at once by the ordinary

[1] But is there any possibility or probability of determining the state of the cerebral circulation in these morbid states? While the appearance of pale or flushed face may permit a guarded inference respecting the state of the cerebral bloodvessels, it is by no means certain that flushed face means flushed brain. Careful examination of retinal bloodvessels might throw some light upon this point; but while writing this paper, I have received a reprint of an article by Eulenburg, of Berlin, in which another possible method of determining this question is suggested. Eulenburg has made accurate measurements of the resistance offered to the galvanic current by passing the same in a sagittal direction through the head. He determined the minimum of resistance in each case, and at each sitting, and was surprised to find that this minimum resistance varied but little, not only in the same individual, but in different individuals of the same age and condition of life. The average minimum of resistance in healthy persons was between 1200 and 1600 ohms. Marked departures from this average were noted in gross brain lesions, but still more distinctly in cases of severe functional disturbances—in hemicrania, anæmia, chorea, Basedow's disease, hystero-epilepsy, and the like. The increase or diminution of the minimum of resistance Eulenburg attributes to the variability of the quantity of blood within the skull. But the question is not settled yet; for although Eulenburg was able to state that the resistance of a given column of blood was twice as great as an equal volume of cerebro-spinal fluid, he found the resistance increased in those conditions of the brain in which there was presumably a reduction in the total quantity of blood present within the cranial cavity.

[2] Dispensary patients seem to be relatively free from insomnia. While the number of neurasthenics is great enough, they do not often complain of sleeplessness.

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blood and spinal tonics; but, above all, every precaution should be taken to increase the force of the heart and of the whole circulatory apparatus; and that this cannot be done better in any way than by the use of cool douches to the head, chest, and spine; by prescribing a bland diet, together with some alkaline water, and by compelling the patient to take considerable outdoor exercise, either in the form of walking several hours each day, or of riding, rowing, bowling, and the like. During the summer months, mountain climbing, if not carried to excess, would be an admirable substitute for such exercise as we city people are at other times compelled to take.

The adoption of the rules laid down by Oertel would surely be followed by good results.

The substitution of passive for active exercise is, in my opinion, not sufficient, and incidentally I may remark that a patient who was otherwise doing well under a modified Weir Mitchell treatment was, during the greater part of the time, a great sufferer from insomnia.

After a few weeks of such treatment, I believe there will be marked improvement in many, if not in most cases of insomnia. But patients have an annoying way of wishing to obtain *prompt* relief, and obtaining this they become more tractable, and more amenable to every other form of treatment. It is on this account chiefly that we cannot dispense altogether with hypnotics, and must administer them occasionally in spite of ourselves.

Summarizing the experience I have had in the above cases of functional insomnia seen during the last year or more, I find that I have used for treatment chloral and bromide, the bromides separately, the amorphous hyoscyamine, paraldehyde, urethan, and, in a single instance, hypnone. Morphine I have never used in these cases, as I object to it in all cases in which there is not severe pain, and certainly object to it in cases such as these when the patient would be quite prepared to contract the habit. The bromides alone have been of occasional service to me if given in one-half to one drachm doses, in cases of extreme restlessness, but even in these I have learnt to substitute the amorphous hyoscyamine in doses of about one-twentieth of a grain, repeated every three hours.

I object most strenuously to the plan advocated by Dr. W. A. Hammond and others, of keeping these patients for a long time under the influence of the bromides. These neurasthenic patients require all the will power they can possibly command, and are in much greater need of tonics than bromides. It is easy enough to bring about a condition of semi-stupor in such patients, but that is not equivalent to bringing about healthful sleep.

Paraldehyde I used freely about nine months ago, and for several months later. I gave it in doses of one to one and a half drachms in claret. This dose was always sufficient to bring about sleep the first few nights, but if required beyond this time, the drug proved unsatisfactory, as the hypnotic dose had to be increased, and, while I noticed no deleterious action upon the heart or other organs, the odor it imparted to the breath was excessively disagreeable. One female patient, whom I had not had occasion to see for some months, sent for me one morning after she had had a sleepless night. She had been using paraldehyde steadily in spite of my remonstrances, and I found, on entering, that the room was actually filled with the exhalation of paraldehyde.

Urethan has been satisfactory in a number of cases. It has no disagreeable after-effects, and does not irritate either the stomach or bowels. It has been my experience that the dose should be between two and three grammes, and that greater quantities of Merck's preparation induce wakefulness rather than sleep.

The mixture of fifteen grains of bromide and twenty grains of chloral has often come to the rescue when every other hypnotic refused to act. I have seen no ill-effects follow the exhibition of this mixture, even in cases of weak heart.

A word as regards electrical treatment. In several cases in which no other remedy could secure relief, I have been able to induce sleep by galvanism applied to the head after the patient had retired for the night. I have given galvanism in the form of subaural, supposed sympathetic galvanization, and by passing currents directly through the head, with one pole on the nape of the neck, and the other on the forehead; changing cautiously the nature of the poles, and allowing the current to flow in an opposite direction, and never using a current of more than two milliampères. Occasionally I placed one pole over each temple. I have not been successful in the endeavor to bring on sleep by general faradization. Faradism to the head I would not apply under any circumstances. Moreover, so far as our present knowledge goes, galvanism is more effective than faradism in bringing about vasomotor changes.[1]

If I have accomplished nothing else, I trust I have convinced some of you that in the treatment of these cases of neurasthenic insomnia, we are in need not so much of additional hypnotics, as of more effective means of regulating and influencing cerebral circulation.

THE POLAR METHOD OF ELECTROTHERAPY IN GYNECOLOGY.[2]

APPLICATION, DOSAGE, AND MEDICATION.

BY GEORGE J. ENGELMANN, M.D.,

PROFESSOR OF OBSTETRICS AND DISEASES OF WOMEN AT THE ST. LOUIS POST-GRADUATE SCHOOL OF MEDICINE; FELLOW OF THE AMERICAN GYNECOLOGICAL SOCIETY, BRITISH GYNECOLOGICAL SOCIETY, LONDON OBSTETRICAL SOCIETY, ETC.

(Concluded from page 570)

IV. ELECTRO-MEDICATION.

We cannot doubt the value of electricity to man; that it is an agent of infinite power, and one adapted to all possible purposes, the discoveries of the last decade have shown, and this subtile fluid, which has

[1] Since the reading of my paper an article covering this part of the subject has been published by Massey in this journal for May 7, 1887. It will be observed that my opinions differ in some respects from his. It is worth noting that in the discussion following the reading of my paper, the soporific effects of Franklinization were referred to by several speakers, thus corroborating by anticipation Dr. Massey's remarks.

[2] Read before the St. Louis Medico-Chirurgical Society.

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added to so great an extent to the comfort and convenience of the human race, which is so well serving the outer wants of man, must now be made to contribute to the welfare of his inner being. The medicinal virtues of electricity are still to be developed; many attributes which are of value to us you know—the contracting power of faradism, the chemical properties of galvanism, as you see by the affinity of acids for the positive pole, and of alkali for the negative, and the electrolytic action of galvanism, as shown by the rapid disintegration of water, hydrogen seeking the negative pole, oxygen the positive.

I have told you that I have instantaneously checked hemorrhage in the uterus post partum, by the contractile action of faradism in desperate cases, and by two applications brought about the menses which had ceased for a twelvemonth; that I have destroyed intrauterine tumors as large as a hen's egg in three sittings of five minutes each; completely relieved the distressing symptoms of congestion, gastritis, dysuria, and constipation, in a patient suffering from a large abdominal tumor, and reduced the circumference by five inches, by five consecutive daily treatments of eight or ten minutes each. I have dispersed the painful swelling due to a contusion of a joint, which had for three weeks resisted treatment, by a single mild application of faradism, and relieved the pain of articular rheumatism which opiates could no longer control. I have relieved aneurisms and destroyed angioma by the coagulating action of the positive pole, and increased the flow of blood from indurated hyperplastic uteri by the fluidifying action of the negative pole; a prolapse with œdema of the leg was relieved by faradism, and the patient, who had not walked for twenty years, was enabled to move about as freely as any one of her age, after a two months' treatment; a stenosis of the uterine canal, which caused agonizing menstrual suffering, was relieved in three sittings of five minutes each, and permanently overcome by six or seven more; the most obstinate pruritus, which had long resisted treatment, was cured by one application; constipation and dysuria have been rapidly relieved after resisting the usual remedies. We have just discharged a poor girl who came to the clinic two months ago, partially disabled by a solid pelvic effusion, which had the appearance of a fibroid rather than of an inflammatory product, filling the pelvic cavity, displacing the uterus, and wedging the cervix in between the effusion and the symphysis; in twelve treatments, electro-cauterization, of five minutes each, with from 60 to 100 milliampères, the *complete absorption* of this mass was brought about, it has disappeared, leaving only the somewhat thickened normal tissues. How rapidly it was destroyed I cannot say, since no examination was made until the twelfth treatment, and then it was gone. Is not this a triumph?

An effusion, as hard as fibroid tissue can be, which had for five years been undermining the health of this poor girl, and at last almost disabled her by hemorrhage and pain, is dispersed by twelve painless treatments, which not only do not interfere with her work, but aid her in it by the immediate relief afforded; each application was marked by improvement and increased well-being; first hemorrhage, then pain subsided, whilst her strength steadily increased.

This rapid result has induced me to observe other patients more carefully, and I find similar effects in similar conditions, with an opportunity of observing the final disappearance, the steady decrease, of such effusions called fibroids by some.

Such are the results which may be obtained by the proper use of the "polar method," by the application of strong and effective currents, and their localization, as taught by Apostoli in the treatment of fibroid tumors. More still can be accomplished.

In an early paper I treated of electricity as a nerve sedative, and a stimulant, a muscle contractor, and antispasmodic, an antiphlogistic and counter-irritant, a vesicant, a tonic and promoter of development, an absorbent, chemical cautery and escharotic, electrolytic, hemostatic and decongester, and a promoter of hemorrhage and congestion. It has other properties still. Since then I have utilized it as a *medicator*, and although I have not as yet obtained such striking results, this property of the electric current is one so peculiar that it deserves recognition; I have termed *electro-medication* this method of treatment by the *nascent ions* of an *electrolyte*.

By the electrolytic, or electro-chemical, action of galvanism water is resolved into its components H and O. Bromide of potash, iodide of potash, muriate of ammonium, and chloride of sodium respond in a precisely similar manner, while the bases are set free at the negative pole, the metalloids, Br, I, and Cl, are found at the positive pole.

In order to limit the extent of this paper, I shall confine myself to the above combinations or types. Br, I, and Cl are powerful gases, especially active in the nascent state in which they are brought in contact with the tissues in electro-medication. I shall not here treat of the possibilities of conducting the electrolyte *into* and *through* the tissues, but merely of its effects *upon* the tissues in contact with the pole at which it is set free.

If we place positive and negative poles of a galvanic battery, armed each with a platinum needle, into a glass filled with a solution of iodide of potash and starch, we will at once see the bubbles of hydrogen rising at the negative needle, and the fluid about the positive pole turning blue from the action of the developing iodine on the starch; in like manner is the iodine set free at the positive pole when in contact with the tissues.

Saturated solutions must be used and prepared at the time, as solutions which have been standing are no longer serviceable on account of chemical changes which take place.

Platinum should be used as a carrier, as most of the nascent metalloid is taken up by other metals and lost to the tissues, if the electrode be of susceptible metal.

The stronger the current the more rapid the development.

The positive pole must be the active pole, and must carry the solution in contact with the tissues to be acted upon.

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The negative must be the dispersing pole.

These applications are admissible only in cases in which galvanism is not contraindicated.

They can be made most effective in locations in which greater quantities of the fluid can be applied, as in the vagina, in the uterus, and on the abdomen, where large electrodes can be placed.

These applications may be made directly for the purpose of medicating the diseased surface, or as an addition to the proper application of the electric current, as indicated in the case—*e. g.*, in making a vagino-abdominal application of galvanism for purposes of absorption in chronic perimetritis, we obtain precisely the same effect from the electric current, whether we use the abdominal plate saturated with water or with iodide of potash; but in the latter case we assist its action by the developing iodine.

Iodine may be applied in cases of cellulitis by the usual vagino-abdominal application.

a. With the positive dispersing electrode, saturated with iodide of potash over the diseased side, and the negative cotton-covered ball electrode in the vagina, using currents of 40–80 milliampères.

b. With the vaginal ball electrode covered with absorbent cotton saturated with iodide of potash in the vagina, and the negative dispersing plate on the abdomen, using currents 40 to 80 milliampères, or over; in this case the vagina can be filled with the fluid, and a more effective action be produced.

c. In cases of hyperplasia and metritis a saturated solution of iodide of potash is applied to the cavity, and after the tissues are moistened with this, a delicate applicator, best of platinum, is armed (as for medicinal application) with absorbent cotton, saturated with the solution, placed in the cavity, and connected with the positive pole; the abdominal dispersing plate being the negative pole. The current should be of such strength as it would be if used merely for its proper effect; but if this is less than 30 or 40 milliampères, the application should be prolonged to six, eight, or ten minutes, in order to allow of sufficient development of iodine; 100 and 150 milliampères may be used

Bromine. A powerful cautery and antiseptic; is useful—

a. In endometritis with profuse secretion, or with offensive discharge, as an intrauterine application, bromide of potash being used in precisely the same manner as the iodide in the last-mentioned case.

b. To the cervix the application may be made by saturating the cotton covering of the positive electrode with the solution and pressing it against the tissues.

Chlorine is developed from common salt or from chlorate of potash, and will prove less serviceable than either of the preceding agents. Chlorine may be used in the uterine cavity after the removal of offensive tissue by the curette or the douche.

These elements in their nascent state are indicated when a gentle, diffuse, and general action is desired, and the necessary accompaniment of this method of application, the galvanic current, will further the treatment; they are most effective if sufficient quantities of the fluid can be utilized.

Many other remedies may be so applied, and I have merely mentioned the above as examples of this method of electro-medication by which certain advantages may be attained, which will, I hope, be more fully developed by continued experiment. Possibly we may be enabled to carry remedies into the tissues, as was at one time hoped by that enthusiastic electrician and eminent surgeon, my honored teacher, Victor von Bruns, more than twenty years ago.

Recent operators have again claimed to have carried iodine into pelvic effusions by this means. I have myself only attained negative results in my attempts to develop this method of interstitial medication which would prove the turning-point of local applications, and a most progressive step, if it could be accomplished. As I have no results, I will not discuss the subject, and have confined myself to what I have found feasible, superficial electro-medication by gaseous elements in their most effective state, when nascent.

I have been gratified by the general interest which is taken in the development of gynecological electrotherapy, and more than pleased by the results of my efforts to establish the galvanometer, the use of effective currents, and the large dispersing plate for the indifferent pole; hence I have not waited to develop fully this method of electro-medication, but now present to you the outlines and the fundamental principles of the method which I believe to be susceptible of development, and this I hope it will receive at the hands of one of our active workers who is interested in the success of electrotherapy.

MEDICAL PROGRESS.

COCAINE IN THE TREATMENT OF WHOOPING-COUGH.—BIANCHÉ has given cocaine internally for whooping-cough with good results. His dosage was from 1½ grains and 4 grains to 7½ and 12 grains in 24 hours. Given in solution in small, frequently repeated doses.—*Lo Sperimentale*, 1886.

TREPHINING FOR PACHYMENINGITIS.—The following case is reported from the Royal Infirmary, Dublin, from the clinic of GRAINGER STEWART:

After consultation on the morning of March 1st, as the symptoms had become during the night even more pronounced, it was decided to trephine without delay. The point selected was that corresponding to the posterior part of the third left frontal convolution. Chloroform having been administered, a curved incision, three inches long, was made along the lower edge of the part to be trephined. A trephine, with diameter of one inch, was applied, and a circular piece of bone removed. The dura mater being partially adherent to the bone, was torn at one point in elevating the circle, and through this opening there immediately welled out with a pulsatile movement a quantity of serous fluid, at first brownish-red, afterward dark red in color. The opening in the dura mater was enlarged, and about six ounces of this fluid escaped. On inserting the finger, it was found that the fluid lay between the dura mater and the arachnoid, in a space extending backward about three

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inches, and forward two inches, and it at once became clear that the pressure of a hemorrhage had led to the increase of the symptoms. We concluded that this hemorrhage was the result of a pachymeningitic process, and recognized that while the immediate danger had probably been obviated, the ultimate prospects of the patient were less favorable than they might have been had an abscess within the hemisphere been the cause.

On recovering from the chloroform the patient showed marked improvement in respect of intelligence, sensibility to touch, and motor power, and he soon began to speak sensibly, and to express the great relief he had experienced from the operation. The exaggeration of reflexes which had appeared on the right side had now passed off.

On March 6th nineteen convulsive fits occurred in the course of six hours, the patient often screaming loudly during the attacks. The condition gradually became worse; during the last hours of life the convulsions had for the most part disappeared; the patient lay comatose, breathing stertorously, and with much puffing of the cheeks, especially the right. The skin and conjunctival reflexes were abolished, the deep reflexes were masked by clonus in the right arm, were exaggerated in the left arm, and were completely absent in both legs. Respiration became peculiar; the tracing taken with Marey's polygraph showed 26 full respirations, 19 shallow, 20 full, 18 shallow, with sudden alternation. The urine was drawn off; it was dark in color, very acid, and contained a considerable amount of albumen, but no peptone, bile, or sugar. There was an occasional jerk of the muscles of the fingers or of the pectorals. The character of the breathing changed suddenly, expiration becoming much longer and sighing in character, and the patient died shortly after 11 P.M. Just before death the temperature in the left axilla was 98.8° F., and in the right axilla 102.4° F., the pulse 150, and the respiration 50 per minute. After death the temperature rose in both axillæ, but more in the left than in the right. —*British Medical Journal*, April 23, 1887.

CONVENIENT FORMULÆ FOR THE USE OF BALSAM OF COPAIBA.—For internal use:

℞.—Balsam copaivæ . . . . 2 parts.
Spirit. juniperi . . . . 3 "
Spirit. ætheris nitrosi . . . 1 " —M.
Sig. 30 drops 4 times daily.—SCHŒMANN.

An emulsion, for topical use, by injection:

℞.—Balsam copaivæ . . . . 4 parts.
Sodii carb. cryst. . . . . 2 "
Aquæ . . . . q. s. ad. 100 " —M.
Sig. For injection.

This emulsion was originally a French prescription, but being a convenient and permanent emulsion has been widely used. It is commonly diluted with three parts water, when an intravesical injection is made; when excessive pain is present, a few drops of tincture of opium may be added.—JEANNEL.

℞.—Balsam copaivæ,
Extr. cubebæ . . . . āā ʒ 2½.
Cubebæ pulv.,
Myrrh. pulv. . . . . āā q. s.
Ft. pil. 50 in num. Coat with gelatine.
Sig. Two or three pills several times daily.

TREATMENT OF MALIGNANT STRICTURE OF THE ŒSOPHAGUS BY TUBAGE.—SYMONDS, of London, reports his methods as follows:

1. So long as solids can be swallowed, let the patency be maintained by the passage of bougies, for neither by tubage nor through the opening formed by gastrostomy can solid food be introduced. Well-stewed tripe, rabbit, and pigs' and calves' feet are swallowed readily.

2. When solids can no longer be taken, a short tube should be introduced. This, when considerable dilatation has been effected, may be removed altogether from time to time, and the patient allowed to take solids. This form can be worn till the case terminates, unless pulmonary symptoms supervene, especially cough on swallowing.

3. When the passage of fluids can no longer be borne, then they must be withdrawn altogether from the gullet. This can be accomplished in two ways: (*a*) by the use of Krishaber's long tube; (*b*) by gastrostomy.

The duration of life after this stage has been reached will in no case be long, and it becomes a question of giving the patient the greatest amount of comfort. The experience of others as well as my own shows that long tubes may be worn till the termination of a case; and, as I believe, the ulceration will be avoided by using rubber tubes, and passing them by the nose. To this method I give my adhesion, rather than to gastrostomy. Those who have seen many cases know the difficulty that often arises from escape of the gastric juice, and that not a few have been fed into the peritoneum, while the operation, if done when the patient is in a depressed condition, is very likely to be unsuccessful, either from want of union or exhaustion. Other means are sufficient in the earlier stages.—*British Medical Journal*, April 23, 1887.

SPARTEINE, IN COMPARISON WITH DIGITALIS.—STALSSEL has made extensive experiments in Vienna, and concludes as follows:

Sparteine, in doses of ⅛, ⅝, and 1½ grains, produces the same results as digitalis, in somewhat less degree. It is not a pure diuretic. No ill after-effects were observed.

Digitalis is superior to sparteine in every respect. It is only when digitalis is not well borne, or when the newer drug can be used as an adjuvant to digitalis that it should be employed.—*Centralblatt für die Gesammte Thérapie*, April, 1887.

TRANSVERSE SEPTA IN THE CERVIX UTERI.—M. BUDIN has recently published in the *Progrès Médical* an original article on incomplete transverse septa in the cervix uteri. In 1875 he discovered a diaphragm of this kind in a patient at the Maternité, Paris, during labor. She had already borne one child. M. Budin found the cervix completely effaced. On passing the finger over the fœtal head, the edge of the septum could be plainly detected. The septum was well marked on the right side, and existed in front and behind, but appeared to be absent on the left side. Labor was normal. In 1879 Professor Depaul induced premature labor in a primipara, aged thirty, with a deformed pelvis. M. Budin detected, when the os was well dilated, a septum equally marked in all directions; it had a wide orifice, and appeared to be attached to the walls of the cervix

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below the os internum. Labor was long, but the waters pushed the septum well downward, so that it did not appear to be the cause of the prolonged process of parturition. When the patient was convalescent the septum could be detected, but it was less marked than before. Müller detected a similar septum below the os internum in a single girl, aged twenty, subject to retroversion and menorrhagia. Breisky, in his notes, recorded a case of cervical septum in a woman, aged forty, also subject to menorrhagia. Bidder detected a septum in a primipara, aged twenty-six, during labor, as in Budin's cases; here, again, the septum was most developed on the right side. The pains were feeble, and the septum certainly obstructed labor. Its edge was incised, and the margin of the os externum was also incised; the os was then dilated, and a male child delivered with the aid of forceps. The septum seems to have disappeared after labor. Perhaps, Budin suggests, the left side of the septum had been destroyed in his case during the first labor. From notes supplied to him by the head widwife at the Maternité, there appear to have been seen in 1884 and 1886, in Professor Tarnier's wards, two cases of uterine septa. The first occurred in an instrumental labor, the termination of the patient's seventh pregnancy. The septum seemed to lie at the level of the os internum; it was very rigid, its orifice was minute, and its tissue contracted simultaneously with the uterine contractions. In the second case, a primipara, a septum with a very narrow orifice was detected nearly an inch above the os internum. The shoulder presented, and tore the septum. Turning was performed, and the child was delivered alive. The torn septum could be detected afterward. The true relation of the menorrhagia in some of the above cases of cervical septum is doubtful.—*Brit. Med. Journ.*, April 23, 1887.

AN INJECTION FOR BLENNORRHŒA.—

℞.—Acid. tannic.	. . .	. gr. 23.
Plumbi subacetat. (liquid)	.	. ♏45.
Tinct. catechu	. . .	. ʒjss.
Tinct. opii	. . . .	. ♏23.
Aquæ rosæ	. . . .	. ʒ 12½.
Aquæ destillat.	. . .	. ʒ37½.—M.

Sig.—Inject morning and evening, and allow to remain in the urethra two or three minutes.—*L'Union Médicale*, April 11, 1887.

DOSAGE WITH CHILDREN.—BUTTIN gives the following table:

For children from

1 to 2 years,	$\frac{1}{10}$	the dose for adults.	
2 to 5	"	$\frac{3}{20}$	" "
5 to 7	"	$\frac{1}{5}$	" "
8 to 10	"	$\frac{3}{10}$	" "
11 to 13	"	½	" "
14 to 16	"	⅔	" "
17 to 19	"	¾	" "

For aged persons, between 65 and 80, ⅘ the ordinary adult dose.—*Journal de Médecine*, April 10, 1887.

A POSTURAL THEORY OF PHTHISIS.—A theory advanced by G. W. HAMBLETON, of King's and Queen's College of Physicians, Ireland, is as follows:

Man, in a state of civilization, does not hold himself erect: he stoops more or less. The weight of his shoulders is thrown on the thorax, and, consequently, the latter is impeded in its movement, and his chest is narrow. Man, in the uncivilized state, holds himself erect; the weight of his arms is borne by the spine; his chest is broad, well developed, and freely movable; and he passes the whole of his existence in active exercise in the open air. The trades and occupations that supply the greatest number of cases are those in which small particles of various substances are constantly inhaled, those that necessitate little movement or even a cramped position of the chest, and those where a considerable time is spent in small and badly ventilated rooms. In the army those who become phthisical are those who have a chest capacity below the average. In short, the conditions that produce consumption are those that reduce the capacity of the lungs below a certain point.

In support of this theory, Mr. Hambleton gives the results of some experimental investigations which he has made, in the form of the following propositions: 1. That artificially induced reduction of the breathing surface of the lungs below a certain point, together with the prevention of compensatory action of other organs, is followed by a local and general state not to be distinguished from consumption; 2. That arrest of this artificially induced reduction of the breathing surface of the lungs, together with induced compensatory action of other organs, is followed by relief of the prominent symptoms, and improvement of the general state; 3. That artificially induced full development of the breathing surface of the lungs is followed by an entire absence of all symptoms of disease, and by general good health. —*Science*, April 29, 1887.

THE CAUSES OF SUPPURATION.—A. ZUCKERMANN (*Centralbl. f. Bacteriologie u. Parasitenkunde*, No. 17) relates his experiments upon suppuration, which have led him to these conclusions:

That no chemical, mechanical, or thermic influences can excite suppuration if they are wholly free from microbes; and in cases where these causes apparently act it is probably through some pyogenic microbe. For substances chemically pure may be mycotically impure; thus some disinfectants are not always free from microbes. The varieties of microbe known to cause suppuration are Staphylococcus pyogenes aureus, albus, and citreus; Streptococcus pyogenes; and in fetid abscesses, Bacillus pyogenes fœtidus. Inoculations with staphylococcus and streptococcus produce fatal results if injected in large amount into animals, or lead to suppuration if death do not occur. The pyogenic microbes must have a very general distribution in nature; they may enter the body through the air-passages, the intestinal canal, and especially the skin, and by means of small wounds or the orifices of the cutaneous glands. Staphylococcus is more frequent than the streptococcus pyogenes.—*Lancet*, April 30, 1887.

PROGNOSTIC VALUE OF SUDAMINA IN TYPHOID FEVER.—BARADAT and LACASE give the following conclusions in an article in the *Revue de Médecine* for April 10, 1887:

Sudamina appearing at the commencement of the second week of typhoid fever have no value in prognosis. Sudamina appearing after the second week announce the approach of convalescence.

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SATURDAY, MAY 28, 1887.

COLD IN THE TREATMENT OF LOCALIZED NEURALGIAS.

THE many and various methods which have been introduced for the relief of this most painful and annoying affection, particularly when occurring in nerves situated in superficial regions, have none of them, unfortunately, brought the widespread and permanent relief for which their originators hoped. Although the discovery of a cure for all neuralgias is probably an impossibility, owing to their many causes, it is perhaps fortunate that the physician has so large a number of therapeutical resources, since he can always tell the sufferer of the cures which still another remedy has effected.

Almost all the remedies which have been used locally for this affection have belonged to one of two classes, namely, counter-irritants and sensory nerve paralyzants. Lately, however, extreme cold has been tried with no small degree of success, and although its use is by no means novel, it may be of interest to call attention to the results obtained.

Early in April of the present year M. DEBOVE reported to the Société Médicale des Hôpitaux no less than one hundred and sixty-eight cases treated in this manner, of which one hundred and fifty were cases of neuralgia of the sciatic nerve. His results are even startling in their success, and if further experiments show that they are to be relied upon, a remedial measure of great value in such cases is given to the profession, for in only ten cases did relief fail to appear, while in the treatment of eighteen cases of facial neuralgia, but two were unsuccessful, notwithstanding the fact that several of them had heretofore proved most intractable. Thus he mentions the case of a woman who had suffered for years with neuralgia of the face, and who had submitted to section of the nerve no less than three times, in whom these cold applications effected a cure in two months.

M. Debove, after stating that he had used the chloride of methyl in the form of a spray for the purpose of lowering the temperature of the area involved, proceeds to warn us against the discoloration of the skin which sometimes follows its use, and insists that the surface and not the deep parts should be treated. It seems probable that the cold must act in quite a different manner in the case of neuralgia of the sciatic and of any of the facial nerves, since in the one case the nerve fibre is much more deeply buried than in the other, so that while the facial nerves are directly acted on by the cold, the sciatic is only affected by the increase or decrease of blood and warmth in its immediate neighborhood.

CHOLERA IN PREGNANCY.

A VERY interesting memoir upon this subject by QUEIREL, of Marseilles, was recently presented to the Paris Academy of Medicine by Charpentier, and an abstract of it is found in the *Archives de Tocologie* of March 30th. It is founded upon sixty-seven cases, of cholera occurring in pregnant women in the last epidemic of the disease, thirty-nine of which were observed by the author, and our readers will be interested in some of the important facts he notes.

Of the sixty-seven cases, thirty-nine died, and twenty-eight recovered; twenty-nine of the sixty-seven aborted or had premature labor. Previous statistics have shown that interruption of pregnancy is rather more favorable for recovery than its continuance; but the figures of Queirel indicate the reverse, the mortality of women who did not abort or have premature labor, being only forty-three per cent., while that of those in which one or the other of these accidents occurred was seventy per cent. The cases of premature labor gave the number of twenty children born alive, but most of these died soon after birth.

Queirel, in considering the causes of the arrest of pregnancy, discusses the following hypotheses: reflex action, uterine cramps corresponding to those of the limbs, toxæmia, and disturbances in the fœto-placental circulation. He regards it as probable that each is efficient in arresting the pregnancy. In some cases the uterine action appears to occur without the consciousness of the patient; the tissues seem to present no resistance, the neck and the perineum yielding at once, and the ovum is expelled entire. A remarkable fact is observed in these cases, and that is the striking diminution of the amniotic liquor, the loss of fluid corresponding with that in the mother's tissues. The depressing influences of the diarrhœa, and especially of the vomiting, facilitate the occurrence of abortion. Cramps of the

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uterine muscular tissues are assisted by those of the muscles of the abdomen in expelling the ovum.

A hemorrhagic endometritis has been regarded in cholera, as well as in some other diseases, as a cause of abortion. But Queirel has never found, either in abortions or in premature labors occurring in cholera, any proof of this; on the contrary, there have been no hemorrhages, even in cases where there was uterine inertia. He does, however, attribute very great importance to the condition of the blood; it is less fluid and it is loaded with carbonic acid, and, hence, premature uterine contractions occur. Further, not only does the maternal blood, under such circumstances, fail to furnish oxygen, but it subtracts it from the fœtal blood, and, hence, the fœtus dies before the mother.

The question of pyrexia as a cause of the death of the fœtus and consequent abortion is considered. Until quite recently it has been held that, as the fœtus has a slightly higher temperature than the mother, should her temperature be for some time greatly increased, the child perishes. But in 1883, Charpentier, assisted by Doléris and Doré arrived at very different results from those obtained by German observers, whose experiments were regarded as establishing this statement; it was proved that a hyperthermia gradually produced had no such injurious effect upon the fœtus, and this conclusion has been confirmed by experiments made by Runge and Preyer. Nevertheless, we observe that in the most recent German work upon obstetrics, that of Zweifel, the author gives as the causes of death hyperthermia and asphyxia. Queirel finds the cause of death, as observed by Charpentier, the same as that in syphilis, variola, scarlatina, rubeola, erysipelas, typhoid fever, and toxæmia. "This has the chief *rôle;* hyperthermia, when present, acts only an accessory part."

Such is a brief presentation of the results of Queirel's observations of cholera affecting pregnant women.

THE USE OF ANTIPYRIN FOR THE PURPOSE OF RELIEVING PAIN.

WITHIN the last few years the so-called coal-tar group has been worked over so thoroughly that we have already at our disposal no small number of drugs which we constantly use at the bedside for the purpose of reducing temperature, and notwithstanding the fact that these substances have become well-nigh absolute necessities as antipyretics, recent observations point to their use in many other directions. Quite recently GERMAIN SÉE, in *L'Union Médicale*, for April 26, 1887, has recommended antipyrin as an analgesic, and has obtained results from its use in such a number of cases of severe pain that his experience deserves notice.

After discussing the use of antipyrin in the pain associated with gouty and rheumatic lesions in the joints, he proceeds to record observations of alleviation of severe suffering in headache, facial neuralgia, obstinate migraine, and even in neuritis, including in the list not only those symptoms dependent on gouty and rheumatic tendencies, but also almost every painful affection, be its cause what it may, such as lumbago in all its forms, neuritis occurring in diabetes and from injuries, and muscular rheumatism; the greater number of cases consisting, however, in disorder of the peripheral nervous apparatus rather than the centric. While Sée is perhaps the first observer who has used antipyrin on such an extended scale for this purpose, it should not be forgotten that others have preceded him in more limited lines of clinical experiment, among whom may be noted Ungar and Martin, who have reported very favorable results from its use in sciatica.

As is often the case, clinical experience leads one to direct experiment, and under the direction of Sée, his chief laboratory assistant GLEY confirmed the analgesic action of the drug by experiment on the dog, in which they found that doses of about thirty grains produced lessened reflex activity, benumbing of the receptive and perceptive centres, and sensory nerves, without influencing either the cardiac rhythm or the respiration. The general circulatory system remained unaffected, and, if the temperature of the animal was normal, no change took place in its bodily heat.

Some of the experiments of Sée and of Gley, have been confirmed in this country, and there exists no doubt that antipyrin can be used as an analgesic without any fear of untoward effects on organs which we are accustomed to regard as vital. While conservatism tends to make us doubtful as to the power of the drug to produce the results which are claimed, the eminence of the authorities named is sufficient guarantee to induce the practitioner to give it trial, since the physician who possesses a large number of "pain-killers" is sure of professional success.

GAVAGE OF THE NEWBORN.

GAVAGE was first employed by Tarnier in the case of infants born prematurely; and it is recommended, also, for those who, though born at term, suffer from coryza, or who have just been operated upon for harelip, the former not being able to nurse, while in the latter the movements made in sucking interfere with primary union. In the *Archives de Tocologie* for March 30th, we find a description of the method of gavage advised by BAR.

Human milk is, of course, preferable, and next that of the ass. But instead of these cow's milk may be used, prepared according to the following method advised by Tarnier. One part of sugar is added to

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twenty parts of water, and this is added to cow's milk in the proportion of three to one. The mixture is kept in boiling water for half an hour; then the sterilized liquid is decanted, and placed in a suitable vessel of glass or of porcelain.

The simplest form of apparatus, advised by Bar, for administering this food to the infant is composed of a glass funnel to which a sound (No. 14), or a rubber-tube of the same diameter, but twice as long, is attached. The funnel and tube being filled, pressure is made upon the tube just below its attachment to the funnel, in order to prevent the escape through the lower end. The infant is placed in the lap of a nurse, the head moderately extended, and the physician holding the apparatus in his left hand, takes the free end of the tube in his right hand and, after moistening it, passes it into the back part of the throat, and thence by gentle pressure into the œsophagus; when about six inches of the tube have passed the lips the end is in the stomach, and the compression of the tube is stopped, and the liquid passes simply by gravitation into the stomach. The tube should be removed immediately after the funnel is emptied, in order to prevent regurgitation; the quantity of nourishment used should be, if the infant is very small, only two or three drachms, and in that case the gavage should be repeated every hour. Fermentation of the nutritious mixture should be prevented by the proper preparation of the latter, by washing out the apparatus with a one per cent. solution of boric acid, and by keeping the apparatus in the intervals between its employment in a similar solution.

The results of this treatment have been so satisfactory in Paris—many infants having been saved by it that would otherwise have perished—that it is worthy of a more extensive trial.

PRACTICAL RESULTS IN RESTRICTING DIPHTHERIA.

BEARING on the communicability of diphtheria and the practicability of its restriction, DR. H. B. BAKER presented at the recent meeting of the Michigan State Medical Society, at Lansing, a table and a diagram based on a compilation of reports by local health officers in Michigan for the year 1886, exhibiting the results of isolation and disinfection in outbreaks of diphtheria.

In the 102 outbreaks where isolation or disinfection or both were neglected, the average *cases* per outbreak were a little over 16, and the average *deaths* were 3.23; while in the 116 outbreaks in which isolation and disinfection were both enforced, the average *cases* per outbreak were 2.86 and the average *deaths* were 0.66; indicating a saving of over 13 cases, and 2.57 deaths per outbreak, or 1545 cases and 298 deaths during the year, by isolation and disinfection in the 116 outbreaks, compared with those in which little or nothing was done.

DR. F. P. HENRY, of Philadelphia, has been elected a Corresponding Member of the Royal Academy of Medicine of Rome.

THE profession will learn with regret of the death of Thomas F. Rochester, M.D., Professor of Medicine in the University of Buffalo, which sad event occurred on Tuesday, the result of Bright's disease. Dr. Rochester was born in Rochester, N. Y., in 1823, received a liberal education and graduated in medicine at the University of Pennsylvania in 1848. After study in Europe he began practice in New York, in 1851, but two years later removed to Buffalo and accepted a professorship in the University of Buffalo. He was held in the highest esteem by all who knew him, and he occupied many positions of honor and trust. In 1875 he was elected President of the New York State Medical Society.

DR. EDMOND FELIX ALFRED VULPIAN, Dean of the Faculty of the French Academy of Medicine, died in Paris on May 18th, in the sixty-first year of his age. He was born in 1826, and received his degree in 1854. He was attached to the Museum of Natural History, and made nervous diseases a study. In 1867 he was appointed Professor of Pathological Anatomy at the Faculté de Médecine, and his lectures from this chair created something of a sensation, bringing on him the charge of teaching materialism and atheism. Dr. Vulpian was elected a member of the Academy of Sciences in 1876. He published a number of medical works, the two best known being *The Physiology of the Nervous System* and *Diseases of the Nervous System*.

SOCIETY PROCEEDINGS.

ASSOCIATION OF GENITO-URINARY SURGEONS.

First Annual Meeting, held at the Laurel House, Lakewood House, Lakewood, N. J., May 17 and 18, 1887.

TUESDAY, MAY 17TH—MORNING SESSION.

The meeting was called to order at 11.30 A.M., by the TEMPORARY CHAIRMAN, DR. E. L. KEYES. In his

ADDRESS OF WELCOME,

he first alluded to the circumstances which had led to the formation of the Association. Then, speaking of its objects, he said, he need not enter into the question of specialism as distinguished from general medicine and surgery. That distinction was being made for us by the circumstances of the times. The concentration of labor certainly yielded more perfect results than its general distribution. There was a field ready and those who wished might enter in and work. Because a man be-

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longed to this Association it did not imply that he at all confined his ability to its peculiar line of study; but it furnished to him an arena in which he might develop his ideas and display the work he had done under the keen criticism of minds familiar with the subject matter treated, and capable of still further refining, by their discussion, the quality of his work and enhancing its value.

DR. F. B. GREENOUGH, of Boston, then presented

A FEW STATISTICS ON THE COMPARATIVE FREQUENCY OF THE CHANCROID.

He referred to the marked individuality that was given to the chancroid by the text-books, in spite of which the great difference in the statistics by different observers would show that they must have used a different system of classification. Throughout this divergence of statistics, however, two facts appeared: First, that this lesion had diminished in its relative frequency to the true chancre, with the exception of two periods in Paris, that is, during the war and siege (1870–1871), and during the exposition (1875), and that it occurred more frequently in hospital than in private practice. Dr. Greenough's records at the Boston Dispensary, from July 1, 1873, to March 31, 1887, gave a total of 1593 cases, of which 391 were chancroids, 219 true chancres, 931 doubtful, and 52 cases of herpes progenitalis; making the chancroid stand in proportion to other lesions in the ratio of one to three. These records were not satisfactory, as they showed only the diagnosis made at the time of the first visit. In private practice, out of 100 cases seen, 10 were chancroids, 63 were true chancres, 13 were doubtful, and 14 were herpes progenitalis, being a ratio of one to ten. The diagnosis in these cases was much more reliable. Both sets of cases showed diminution in the frequency of chancroid. The author thought this was due in part to a change in the type of the disease, and a change in the severity of the cutaneous manifestations in syphilis. Herpes progenitalis not having been recognized by earlier writers, was undoubtedly often mistaken for chancroid, and probably, also, a not uncommon inflammation of a sebaceous follicle on the shaft of the penis, and the treatment of either of these lesions by cauterization, universally practised at that time, would make a very good imitation of a chancroid. The fact that the chancroid had just been recognized and described as a local venereal sore, distinct from the chancre, would make it largely sought for at that time.

Dr. Greenough thought that at the present day a virulent bubo was not more frequently seen in connection with a chancroid than with a true chancre, which he considered was due partly to the fact that this lesion was not so frequently irritated by caustics, and he also ascribed the greater variety of the chancroid to the fact that they were no longer manufactured by cauterizing every venereal sore that was not a typical true chancre.

DR. F. R. STURGIS said that according to his observation in the Charity Hospital and Dispensary (New York) practice, the number of cases of chancroid compared with those of chancre, were diminishing.

DR. R. W. TAYLOR, DR. HYDE, DR. MORROW, and DR. ROCKWELL, had observed a diminution in the relative frequency of chancroid to chancre.

DR. HYDE thought the need of time in which to form an opinion, whether a given lesion would or would not be followed by the manifestations of syphilis, should be more generally recognized.

DR. OTIS did not agree in so general a condemnation of the cautery; when used early it was of benefit, used late it might do harm.

THE CHAIRMAN agreed in the remarks made regarding statistics. But he expressed his belief in the virulence of chancroidal pus as compared with ordinary pus. He agreed with Dr. Otis that cauterization of virulent sores within the first ten days is good practice.

THE PRESIDENT read a paper entitled

SUPRAPUBIC CYSTOTOMY FOR VESICAL TUMORS AND LARGE CALCULUS; A RECORD OF THREE CONSECUTIVE SUCCESSFUL CASES, WITH COMMENTS UPON VESICAL SUTURE AND A SUGGESTION FOR DRAINAGE.

He advocated suprapubic cystotomy for vesical tumors, for certain foreign bodies, in cases of very large stone, and in certain exceptional instances for exploration. The method should not be adopted as the usual one in stone. He gave statistics showing that it was especially objectionable in children. He had operated for the relief of large fibro-papilloma, for flat villous growth, and for a large calculus. He described his way of dealing with hemorrhage and of applying the vesical suture. A double curved retractor was exhibited, and a description given of his method of effecting perineal drainage by puncture, probe, and catheter, making only a small perineal incision. The drainage is considered by Dr. Keyes, a most essential step in the operation, and the one feature which makes vesical suture safe and likely to be generally effective; while drainage in the perineum avoids one of the discomforts of suprapubic section, namely, obstinate fistule. He prepares a No. 30 French red rubber catheter by passing a string through it, the string being knotted inside the tip. This he passes by means of a long probe inserted through a puncture made upon a broadly grooved staff, and by aid of a finger in the rectum, thus entering the draining catheter through a hole only just as large as itself.

DR. A. T. CABOT, of Boston, reported

A CASE OF HYSTERECTOMY FOR THE RELIEF OF PYELITIS FROM OBSTRUCTION,

and referred first to a case in which an operation was not performed. The patient died, and the autopsy revealed the fact that the symptoms of obstruction of the ureters which came on late in the history of the fibroid were probably due to settling of the fibroid in the pelvis and contraction of former adhesions while it was in that position. In the case which was made the basis of the paper the pyelitis occurred as an early symptom while removal of the pelvic tumor was possible. A second tumor the size of an orange was felt near the umbilicus, thought to be probably attached by pedicle to the one, the size of a child's head, projecting deeply into Douglas's pouch. Later the condition of the urine and the character of micturition, pain, etc., pointed to cystitis from pressure. Two weeks later the symptoms were those of probable suppuration in one or both tumors. The smaller abdominal tumor was removed, after which micturition was less frequent, but the appearance of pus in the urine and other symptoms pointed to pyelitis, the condition of the kidney being considered due to

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pressure of the pelvic tumor. At an operation for its removal it was with difficulty that it could be pushed up into the abdominal cavity, so tightly was it wedged in the pelvis. The adhesions were not important. The uterus was removed with the tumor, only a part of the cervix being left. The patient rapidly regained strength, and wished to return to work. The urine had become almost clear.

DR. GEORGE CHISMORE, of San Francisco, forwarded a paper entitled

SOME CASES OF PYELITIS IN WHICH FREQUENT AND PAINFUL MICTURITION WAS THE CHIEF SYMPTOM.

Two cases in particular were cited to call attention to the fact noted in the books but not sufficiently emphasized, namely, that frequent and painful micturition might be so pronounced a symptom in pyelitis as to mislead the experienced observer as to the nature of the case, and cause him to address treatment to the bladder alone while the real malady was in the kidneys. In one of his cases in which frequent and painful micturition was the chief symptom the man had sustained a violent muscular strain in the region of the kidney, and for some years afterward suffered in the extreme, and was treated for cystitis by some of the most distinguished specialists; but finally the abscess of the kidney discharged and the patient recovered.

In the second case treatment was directed to presumable cystitis, and at the autopsy the kidney was found riddled with abscesses. He asked, how many times has the healthy bladder been subjected to every variety of persistent treatment while disease of the kidneys has gone on, only shown to be present by post mortem examination? He believed that in many cases the diagnosis of pyelitis could be made only by exclusion.

EVENING SESSION.

DR. J. H. BRINTON, of Philadelphia, read a paper on

HORNY GROWTH OF THE PENIS,

which will appear in full in an early number of THE MEDICAL NEWS.

DR. CABOT had seen a horn perhaps the size of the thumb nail occupying the dorsum of the glans penis in a patient of Dr. Bigelow's about twelve years ago. He could not say whether it had been reported.

DR. J. P. BRYSON, of St. Louis, then read a paper on

THE CHOICE OF OPERATION FOR THE REMOVAL OF VESICAL CALCULUS IN CASES COMPLICATED BY PROSTATIC OBSTRUCTION.

It seemed strange, he thought, how little influence prostatic enlargement has upon the cutting or crushing operation for stone in the bladder. He believed that very rarely is section made purely for prostatic reasons, that is, with the intention not only of removing the stone, but for reducing the size of the prostate as well, and thus reducing in intensity at least, the causes which are most active in the production of stone as well as lessening the sufferings of the patient in after years. Since 1884 he had operated for stone by prerectal section in four cases, all complicated by a large hypertrophied prostate gland, and had had opportunity to observe one other similar case in the practice of a friend. The age of the patients varied from sixty-five to seventy-four years. The operation in each case was successful. In one of his cases he had occasion again to make an incision and enter the tip of his finger, having failed at the first operation to evacuate entirely all the fragments; in two others opportunity to remeasure the size of the prostate was offered during an operation for return of the stone. In one case he estimated the reduction in size of the prostate after the first operation to have been about one-third in its length, and in the other about one-fourth; in none was there now any residual urine of importance. He did not believe that any other operation for removal of the stone would have been attended by so marked reduction in the size of the enlarged prostate.

THE PRESIDENT remarked that while the success of the cutting operation in the case reported by Dr. Bryson as occurring in old people, had been all that one could ask, yet this operation was shown by statistics to have a much larger mortality in the aged than litholapaxy. Whatever the effect of the cutting operation upon the size of the prostate, he thought we should do the crushing operation first if it were practicable, as it was much less dangerous, and if it failed to relieve the symptoms to consider afterward the propriety of any other procedure.

DR. BRYSON said that in none of his cases was the cutting operation the operation of choice. The effect upon the prostate having been noticed, he thought it was worthy of consideration. The discussion was participated in by Drs. Otis and Cabot.

DR. P. A. MORROW read a paper on

IDIOSYNCRASY AS AFFECTING THE SPECIFIC TREATMENT OF SYPHILIS.

He first referred to the ample justification of the claims of mercury and iodide of potassium to be ranked as "specifics" in the treatment of syphilis. These agents when introduced into the organism, directly attack and cause to disappear the organic lesions as well as the functional disorders created by the syphilitic virus. Experience shows, however, that the action of these drugs is by no means constant and infallible—all syphilitics are not equally susceptible to this curative action. The definite peculiarities of constitution which are generally included in the term idiosyncrasy exert a dominant influence in modifying drug action. The therapeutic action of specific remedies is especially subordinated to conditions of aptitude inherent in the individual.

Idiosyncrasy in relation to the action of mercury and iodide of potassium may be manifest in various modes and degrees of intensity:

1. In an abnormal susceptibility to their physiological or toxic effects.

2. In the production of incidental ill effects which may be associated with the drug's physiological action, or may take the place of it, constituting an aberration of the drug's typical mode of action.

3. In an insensibility or failure on the part of the system to respond to the curative action of these drugs.

Various clinical examples were given illustrating the foregoing propositions, particularly cases of idiosyncrasy against the iodide so marked that the local and constitutional disorders caused by the drug surpassed

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in severity the symptoms of the disease itself. In one case under recent observation, ordinary medicinal doses of the iodide repeatedly caused a multiform eruption consisting of pustular, bullous, nodular, and keloidal lesions, attended with the most pronounced symptoms of constitutional "iodism." The specific lesions were much aggravated under its use.

The various expedients which have been recommended to secure tolerance of these drugs by counteracting their ill effects were enumerated in detail, and their comparative value considered.

In conclusion he suggested that the practical significance of idiosyncrasy and its bearing upon treatment had not received from specialists the consideration its importance demands. The rules of treatment had been rigorously and mathematically formulated—so many months of mercury, and after a certain date recourse to the iodide of potassium without reference to the immense variance in the constitution and idiosyncrasies of patients, not only in the toleration of those drugs, but in susceptibility to their curative action.

DR. R. W. TAYLOR, of New York, presented some

OBSERVATIONS ON THE USE OF OIL OF WINTERGREEN IN TREATMENT OF GONORRHŒAL RHEUMATISM,

and detailed the histories of about twenty cases of gonorrhœal rheumatism occurring in the Charity Hospital the past year, in which he had given the oil of wintergreen a thorough trial. In about nine of the cases the disease was of that chronic kind, in old or neglected subjects, in whom no treatment could prove of much benefit. In the others the benefit was marked, and most of them after some weeks recovered entirely. The drug was administered in capsules in pretty large doses, varying according to the circumstances. The urethral secretion also became bland under the action of the drug, and disappeared. Other remedies had in most cases been tried with little or no effect.

DR. ALGERNON S. GARNET then made

A FEW PRACTICAL OBSERVATIONS ON THE TREATMENT OF LATE NEOPLASMS OF SYPHILIS.

He thought it an error to give fixed doses, especially in the later stages of syphilis, without due regard to the nature of the case. He believed in removing neoplasms, slight or grave, and considered no patient safe as long as there was the slightest evidence of the disease. The iodide of potassium or mercury should be pushed in every stage of syphilis as far as it could be borne. If cachexia in the later stage prevented the free use of mercury, tolerance of the drug must be cultivated until the patient could be put under its full influence. Syphilis, he thought, is not a benign disease at all.

WEDNESDAY, MAY 18TH—MORNING SESSION.

The Society went into an election for

OFFICERS FOR THE ENSUING YEAR,

resulting in the choice of Dr. E. L. Keyes as *President*, and Dr. R. W. Taylor, *Secretary and Treasurer*.

DR. F. N. OTIS read a paper on

TEMPORARY OVERSTRAIN OF THE BLADDER PRODUCING CHRONIC RETENTION OF URINE.

He introduced his subject by defining the usual causes and varieties of atony of the bladder. He called especial attention to that form recognized as occasionally resulting from sudden overstrain through even a single attack of retention, particularly when it occurred independent of any organic obstruction, but probably as a result of reflex irritation caused by a contracted meatus urinarius, or urethral stricture of large calibre. Such reflex trouble might, however, arise from the irritation of hemorrhoids, or it might be caused through temporary loss of consciousness, or any nervous shock, or from sexual excess. However caused, he claimed that a single retention of urine from any cause might, within a few hours, produce such an overstrain of the muscular structures of the bladder as to necessitate in some cases the use of the catheter during the remainder of the patient's life. Several cases were cited in proof of the occurrence of acute retention from reflex causes, which were promptly and permanently relieved by division of a urethral contraction. Illustrative cases were given; in none of these was there any prostatic enlargement or close stricture, nor general atrophy of the bladder. From this fact Dr. Otis assumed that the overstrain had been local, chiefly in that portion concerned in opening the vesical orifice. The portion thus weakened was unable to overcome the resistance of the muscular structure of the so-called vesical sphincter.

DR. J. N. HYDE, of Chicago, read a paper on

EARLY SYPHILITIC EPIDIDYMITIS.

He cited cases which had come under his observation with a view of presenting the negative side of the subject. The following propositions, he thought, rested on fairly sound clinical grounds: 1. A male patient may suffer from blennorrhagic epididymitis on one side, subsequently contract syphilis, yet escape syphilitic involvement of the epididymis. 2. A male patient may suffer from blennorrhagic epididymitis involving first one organ, then the other, finally acquire syphilis and escape syphilitic epididymitis. 3. A male patient may suffer from blennorrhagic epididymitis of one or both organs, become so irritable as to exhibit by inflammatory accidents sympathy with successive blennorrhagic attacks, yet throughout a final syphilis betray no sensitiveness to the last-named disease. 4. A male patient affected at the same time with syphilis and blennorrhœa may suffer from an epididymitis, evidently a complication of the last-mentioned disease, namely, blennorrhœa, and yet escape syphilitic involvement of the organ. 5. A male patient may suffer from tuberculosis, subsequently incur syphilis, yet the epididymis escape involvement. 6. A male patient who has suffered from repeated attacks of blennorrhœa, and that lately, may exhibit the typical form of early syphilitic epididymitis.

DR. A. T. CABOT, of Boston, reported two cases of

PROSTATOTOMY FOR OBSTRUCTION.

In one the operation was followed by almost complete recovery of the function of the bladder. In this case litholapaxy was done on the stone before the operation of prostatotomy. In the other case, although the first result of the operation was satisfactory, a certain amount of incontinence appeared some months later. Dr. Cabot ascribed this to the hypertrophied condition of the bladder, which was sufficient to overcome the constrictor muscle, weakened as a result of the incision into the membranous urethra. He queried whether in a case

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like this, with good evidence of a hypertrophied bladder, and in which the obstruction was a narrow bar, the internal prostatotomy of Mercier might not prove the better operation.

DR. KEYES then read

A PLEA FOR THE MORE GENERAL USE OF THE NITRATE OF SILVER IN THE DEEP URETHRA,

and presented an instrument for injecting the deep urethra, which he believed was more suitable and more serviceable than other syringes in general use. His method is to deposit three to five minims of a watery solution of the nitrate of silver of a strength varying from one to forty-eight grains in the ounce very accurately in the centre of the membranous urethra, placing it there by the use of an instrument open at its tip. He thinks the method is not suitable in cancer, tubercle, or when the deep urethral symptoms are due to considerable periurethral inflammation, but most beneficial for inflammatory and neurotic surface disturbances of the deep urethra and neck of the bladder. He gave illustrative cases of cure of gonorrhœal cystitis, relapsing epididymitis, vesical irritability, prostatorrhœa, etc.

In the full discussion of the paper which followed, most of the members expressed hopes of better results from the deep urethral injections of nitrate of silver than had hitherto been generally attained.

DR. J. H. BRINTON was one of the strongest advocates of this method, which he had practised extensively. To relieve the discomfort or pain which the patient experienced after treatment by this or other methods, he had the patient stand by the basin and allow a small stream of water run over the corona of the penis; the relief was almost immediate.

DR. MASTIN referred to the practice of Prof. Richardson, consisting in injecting a drachm of almost a saturated solution of nitrate of silver into the bladder in gonorrhœa and chronic cystitis.

DR. R. W. TAYLOR, of New York, read a paper on

A RARE FORM OF SEPTICÆMIA FOLLOWING INTERNAL URETHROTOMY.

The operation was performed in 1878 by a colleague, and the case was seen by Dr. Taylor in consultation. The occurrence of the accident, complicating urethrotomy, is unique in medical literature, and this consideration, together with the fact that the form of septicæmia is little known and only indifferently described by English and American writers, prompted the preparation of the paper. The patient was a perfectly healthy man, aged twenty-eight, who had a tight stricture of the bulbomembranous junction, which was incised by means of Maisonneuve's instrument. The operation was performed with all care. Within twenty-four hours severe pain attacked the perineal region, and soon a reddish, boggy appearance was observed. Then the inflammatory action extended, and presented marked features. The integument became œdematous, and a distinct emphysematous crackling was felt when pressure was made on the parts. As this rapidly extended, large brown patches of skin developed, which felt as hard as the rind of ham. Beside these there were large ecchymotic spots and deep blue-black lines which were caused by congestion and destruction of the veins. This condition extended over the whole body, which during life was much enlarged by the œdema and gas in the subcutaneous tissue, and after death the body became rapidly swollen beyond recognition and to fully twice its normal size, and was a deep purple, gangrenous mass, covered with large bullæ, and emitting a horrible stench. Death took place eighty-seven hours after the operation. The subjective symptoms were rapid pulse, tremulous action of the heart, progressive and distressing dyspnœa, intense restlessness, utter agony and despair. The temperature at first rose, then fell below normal.

The disease was not accurately known until 1870, although many cases of it had been reported, particularly as occurring in the army, navy, and crowded hospitals. The cases were mostly epidemic. It started on the limbs generally, most frequently on the legs. It had been called many names, but Dr. Taylor referred the one proposed by Mollière, *septicémie gazeuse foudroyante*.

Reasons were given in support of the view that the disease caused by a specific septic microbe. The only treatment is thorough amputation of the part in which the septicæmia begins, if that is practicable.

DR. R. W. TAYLOR, of New York, then exhibited

SECTIONS OF TUBERCULAR TESTES WITH BACILLI, AND THE COEXISTENT BACILLI IN THE SPUTA.

The Association then adjourned to meet next year, time and place to be announced hereafter.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, Washington, D. C., May 11, 12, and 13, 1887.

(Specially reported for THE MEDICAL NEWS.)

THURSDAY, MAY 11TH.—AFTERNOON SESSION.

(Continued from page 584.)

DR. J. COLLINS WARREN read a paper on *A Study of the Process of Repair after Resection of the Intestine, and Some of the Complications which may Occur.*

DR. J. E. MICHAEL then reported

A CASE OF VENTRAL HERNIA SUCCESSFULLY TREATED BY OPERATION, WITH A SUGGESTION AS TO THE METHOD OF OPERATING.

Mrs. F., a stout, robust woman, æt. fifty-five, fell several years ago while engaged in some domestic duties, in such a way that she was struck in the median line about half way between the umbilicus and pubes by the handle of a wash tub. The wound caused a break in the linea alba without breaking the skin, and soon afterward the intestine protruded. No peritonitis followed the injury. Her physician directed her to wear a bandage and pad to keep the intestine within the abdominal cavity, but the arrangement proved unsatisfactory, in that, upon the slightest exertion, even that of walking, the intestines protruded and, getting between the pad and belly-wall, occasioned a great deal of discomfort. Various other appliances were tried by other physicians, but none of them proved efficient. When she came under his care, the return of the protrusion was easy enough, inasmuch as, upon assuming the recumbent posture, the intestine returned almost entirely into the abdominal cavity. The belly was full and fat, but the opening in the abdominal wall was easily recog-

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nized. It was elliptical in shape, with the long axis parallel to that of the abdomen, and, apparently, about two and one-half inches in length, and presenting a firm, hard, apparently cicatricial margin.

He was forced to operate, as the patient would hear of no other plan of treatment. This he did on March 15, 1886, with the aid of ether. The room and all articles to come into contact with the patient were thoroughly fumigated with chlorine gas and sulphur, and the antiseptic plan was employed. A long, free incision was made through the skin and subcutaneous fat, exposing the ring. Stout silver wires were passed through the ring a little less than a half inch from each other, and having a hold of about three-fourths of an inch. The wires were twisted over shot and the abdominal opening was closed. No shock occurred; no fever of consequence, and the patient made a good recovery. A bandage was worn for a few months after the operation, when the patient laid it aside.

In conclusion he said that he based his operation upon the fact that a firm cicatricial band of fibrous tissue is formed around foreign bodies which are lodged in the tissues of the body, and that, although so far as he was aware he was without precedent or authority in the operation, he had assumed that if he placed silver wires in the tissues in this manner, the fibrous tissue which would enclose them would be sufficient to close the hernial ring.

DR. T. F. PREWITT thought the operation had been admirably done. The cure was doubtless as supposed, owing to the large amount of new tissue which was thrown out, causing a thickening and strengthening of the ring. This is in fact the method by which charlatans profess to cure hernias in general. The result may be satisfactory, but there is danger that, sometime in the future, it may give away again.

DR. S. W. GROSS then presented a paper on *The Prognosis of Sarcomata of the Breast*, which will appear in full in *The American Journal of the Medical Sciences* for July.

DR. D. HAYES AGNEW read a paper entitled

THE MEDICO-LEGAL ASPECT OF CRANIAL AND HEART WOUNDS.

(See THE MEDICAL NEWS, May 21, page 561).

DR. L. MCLANE TIFFANY thought there could be no doubt of the ability of an individual to shoot himself, either through the head and afterward through the heart, as asserted, or through the heart first and afterward through the head. He had seen cases both where the head was severely wounded without producing death, and where large wounds of the heart were present without destroying life. There are, however, many things besides anatomical conditions to be considered in the case of a suicide. First of these is the presence of powder marks. Nothing was said in the paper about the individual having these marks about his person. Next, could a man point a pistol in the direction that it would go from apex to base, as described here, assuming that he were right-handed? The simple description of the anatomical points of the post-mortem is but a small part to be considered. It is extremely rare that a right-handed man shoots himself in the left side of the body. In conclusion, he recalled the case narrated in *Taylor's Jurisprudence*, in which a double-barrelled shotgun was accidentally discharged, the first load striking the individual in the chest, the recoil causing the remaining load to be discharged into his back.

DR. JOHN B. ROBERTS reported the case of a man who had shot two bullets into his head and afterward shot himself in the left side. In regard to the possibility of a man's shooting himself in the heart first and the head afterward, he agreed with Dr. Tiffany. He referred also to a paper read by himself before the College of Physicians of Philadelphia, in 1883, in which he called attention to the experiments of Dr. Block, tending to show that the heart may be sutured in cases of penetrating wounds.

DR. E. M. MOORE thought that none of the members would be seduced into very readily permitting a man to be buried as a suicide under such circumstances, for although possible, such shooting is exceedingly unlikely to occur. He had seen a number of cases in which suicide had been attempted by passing a very small bullet into the brain; all were attended by immediate or almost immediate unconsciousness. The general condition, the shock, the hemorrhage, or the attendent conditions of mind are usually sufficient to produce unconsciousness, so that while it certainly is possible for a man to inflict the second injury referred to, it is certainly very improbable.

DR. M. H. RICHARDSON, of Boston, stated by invitation, that he had been one of the "experts" referred to by Dr. Agnew. He desired to testify more fully than the author of the paper had been able to do, what had occurred at the trial. Of the physicians who testified, two local physicians asserted most positively that the supposition was not possible. There was no cross-examination at the trial, and no opportunity of bringing out more fully what was desired. He thought that Dr. Agnew if he had had an opportunity, would have testified exactly as he and Dr. Draper had done. The question was not whether these two wounds could both have been inflicted during the life of the individual, or the witnesses would have testified just as has been done here to-day. The question was rather whether this individual could have inflicted both wounds himself. The bullet entered the skull about two inches above the external auditory meatus on the right side and passed out near the occiput. A ball passing through this part of the brain, if it could have been self-inflicted, would almost certainly have produced immediate unconsciousness; and another fact upon which the opinion was based was that there were no marks of powder on the head. Although the witnesses had had an opportunity of testifying that this was a case of murder and not suicide, they had had no opportunity of saying that such injuries could be inflicted during life.

DR. P. S. CONNER stated that bullet wounds of the heart are by no means necessarily fatal, since he had put on record ten years ago, a case in which a bullet had passed through three cavities of the heart, and the subject, a boy, had lived three years and some months afterward. In order further to demonstrate the possibility of such an occurrence, he had, with the aid of the late Professor Longworth, made a number of experiments, and had found that it is not at all difficult to pass a needle through all four cavities of the heart. The specimen in question was for a long time in the museum of the Medical College of Ohio, but careful search re-

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cently had failed to find it. The reality of the case, he said in conclusion, had been called into question, but it was a fact and had been presented, with the specimen, to the Academy of Medicine, and published in the *Lancet and Observer*.

DR. A. R. KINLOCH reported a case in which the question was whether it was accidental or suicidal shooting of the head. Upon examination he found the heavy beard of the individual presented no evidences of powder upon superficial examination, but that when examined more closely, a deep furrow was found involving not only the base of the beard, but extending into the skin. This proved that the pistol had been intentionally placed well into the beard before it was fired.

DR. D. W. YANDELL reported several cases of a very similar nature.

DR. T. F. PREWITT narrated two cases. One was that of a man who, after shooting his wife, shot himself through the frontal bone. He never became unconscious, and apparently recovered. He was sent to the penitentiary, and a year later died of abscess of the brain. A few months ago a boy of eight or nine years of age, found a pistol, put it to his head and fired. The bullet passed through the left parietal bone into the skull. A probe demonstrated that it had passed beyond the skull, and a little piece of brain was found in the wound. The boy never lost consciousness, but recovered and is now, apparently, perfectly well.

DR. T. R. VARICK stated that he had a few years ago testified in a case in which a young man was indicted for killing his schoolmate. A young lady, an eye-witness, swore that the two young men grappled and fell, and that the defendant laid his hand on the shoulder of the one killed and with the pistol in his right hand shot and killed him. On the other hand, the defense claimed that the pistol was discharged accidentally in the fall. The question was then raised as to the position in which the parties were at the time the pistol was discharged, and the question of powder marks was an important one. He made some experiments in this regard with sheets of paper. He found that up to a distance of two and a half feet there were marks of powder, increasing in intensity as the distance was shortened. The ball in this case entered the squamous portion of the temporal bone just above the zygoma and lodged in the hemisphere of the brain, having passed from before backward. The ball was so flattened that it could not be made to enter the barrel of the pistol from which it was alleged to have been shot. No powder-marks were discovered on the person of the killed, and the defendant was acquitted.

DR. AGNEW arose to explain that he had had no desire to criticise any person in his reference to the expert testimony, and that he had drawn his conclusions entirely from the evidence as furnished him by the prosecuting attorney.

(To be continued.)

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, May 3, 1887.

THE PRESIDENT, C. L. DANA, M.D., IN THE CHAIR.

THE ELECTION OF OFFICERS

for the ensuing year resulted as follows:

President.—C. L. Dana, M.D.

Vice-Presidents.—W. R. Birdsall, M.D., and M. A. Starr, M.D.

Recording Secretary.—G. W. Jacoby, M.D.

Corresponding Secretary.—N. H. Leszinsky, M.D.

Treasurer.—G. M. Hammond, M.D.

Councillors.—E. D. Fisher, M.D., B. Sachs, M.D., L. Weber, M.D., E. C. Seguin, M.D., and G. M. Hammond, M.D.

CEREBRAL TUMOR; PARTIAL REMOVAL.

DR. S. N. LEO read the history of a case of cerebral tumor occurring in a heavy German woman who had, before its appearance, sustained an injury of the skull where the tumor afterward developed. During the growth of the tumor the patient had consulted several well-known physicians, all of whom were of the opinion that an operation should be performed. Some thought it was a wen of the scalp. The symptoms becoming more serious, she finally asked Dr. Leo to perform the operation. Strict antisepsis was observed. As the operation proceeded it was found that the tumor extended within the cranium, involving the dura mater at the longitudinal sinus, and apparently dipping deeply into the brain substance. These facts, in addition to the patient's bad condition from loss of blood, led him to desist from further procedure after cutting off that portion of the tumor external to the cranial vault. He thought the patient would not have lived so long—over a month—had not the operation been performed. Unfortunately an autopsy was not allowed. The tumor was a sarcoma. He added that the patient's condition had been rendered more serious by cardiac disease.

DR. B. SACHS then read a paper entitled

NOTES ON THE CAUSE AND TREATMENT OF FUNCTIONAL INSOMNIA.

(See page 594.)

DR. FISHER thought a very common cause of insomnia is anæmia, and he had seen considerable success in its treatment by cod-liver oil, cream, and articles intended to improve nutrition. In some of the cases ordinary hypnotics had been administered without avail. The patients may have the appearance of being well nourished, while they are really anæmic. The mineral tonics are, as a rule, indicated.

DR. GEORGE B. JACOBY agreed with the author that the cases must be individualized, and thus the cause of the wakefulness might be discovered. He thought that in the majority of cases the cause would be found to lie in the circulation—not always in anæmia, but frequently hyperæmia. Cure the cause and we would cure the sleeplessness. But that which will cure anæmia in one case will not cure it in another. Active and passive exercises, particularly active exercise, are of benefit. For patients who could not go out the muscle-beater is very useful. While he had not much faith in static electricity in the treatment of insomnia, he cited one case in particular in which the physician who applied it for another purpose to one of his patients, himself became sleepy under its influence. Perhaps the production of ozone by the instrument was the cause of this sleepiness, for it is well known that when one goes into an atmosphere of ozone he is likely to become sleepy.

DR. V. P. GIBNEY had noticed that static electricity tends to produce the sleepy state. It was one of th

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few things they had found static electricity good for at the hospital with which he was formerly connected.

DR. W. R. BIRDSALL thought, as did Dr. Sachs, that we must adopt hygienic rather than purely medicinal measures for the cure of insomnia. But we are occasionally forced, as the author had said, to resort to some drug for temporary relief. For this purpose he had obtained benefit without injurious effects, such as sometimes come from bromine, hydrate of chloral, etc., from a drug first recommended to him by Dr. Seguin, namely conium. This given in large doses, fifteen or twenty drops, or more, of the fluid extract, had in his hands been beneficial. He had continued its use two or three months without deleterious results.

DR. G. M. HAMMOND thought fully eighty per cent. of all his patients were similar to those described in the paper by Dr. Sachs. In the large majority of persons suffering from insomnia, mental anxiety, etc., he thought it due to hyperæmia of more or less limited areas of the brain. When the patients do sleep they have unpleasant dreams. They are also frequently sufferers from dyspepsia, constipation, spots before the eyes, noises in the ears, sometimes hallucinations connected with various senses, and coldness of the extremities. It is rare for such patients to go away without being cured, but if they subject themselves to the same causes the condition returns. He used bromides, and stuck to them right through the disease. He gave only ten or fifteen grains three times a day, and also gave fluid extract of ergot. He applied static electricity and dry cups to the back of the neck, and regulated the sleeping hours.

DR. LESZINSKY was rather surprised, in view of a recent discussion before the Society, to hear Dr. Sachs speak of the use of hyoscyamin as a hypnotic. It is a mistake to rely upon large doses of bromides given at night. There is an objection to their use in ladies because of the bad odor which they give the breath. He had not been able to discover any peculiarity in the circulation of the retina in these cases.

DR. L. WEBER said that since he had adopted the treatment recommended by Dr. W. A. Hammond, and just described by Dr. G. M. Hammond, he had obtained the best results in suitable cases for this mode of treatment; but in other cases the bromides may cause excitement instead of aiding sleep. When there is gastro-intestinal disorder he adds to the treatment calomel with benefit.

DR. LESZINSKY referred to a remark by Dr. Birdsall concerning the use of a mustard sinapism, or other cutaneous irritant, and said that Dr. W. H. Thomson had called attention to the beneficial effects of cayenne pepper, etc., to the surface of the body some years ago.

The PRESIDENT had found the warm bath a very valuable measure in many cases; in mild cases of insomnia the cold douche down the back and massage had proven useful. Bence had discovered that ozone has a hypnotic influence. Lupulin had been of benefit in the insomnia of old people; and lavender in some cases in which the stimulus of alcohol or warm food had failed.

DR. SACHS objected to the use of the bromides, particularly in small doses, more than to anything else in the treatment of the class of cases under discussion, namely, those of insomnia in neurasthenic subjects. It is likely to do more harm than good. The testimony at the discussion referred to by Dr. Leszinsky was not against amorphous hyoscyamin, but against the crystalline form.

The PRESIDENT exhibited

AN APPARATUS FOR THE RELIEF OF WRITER'S CRAMP,

called the "Kaligraph" by its inventor, the late Mr. Charles Thurber. It consists of an iron framework to which is attached a series of levers so arranged that by making large characters at one angle the characters are reproduced in ordinary size at the opposite angle. It is, in fact, a kind of reversed pantagraph. Dr. Dana said that all writer's cramp instruments are based on the principle of resting the groups of muscles most used and throwing the work upon other groups. The kaligraph fulfils these indications better than any other instrument with which he is familiar. The objections to it are that it is cumbersome and expensive. The speaker showed cuts of all the various forms of instruments for writer's cramp (ten in all) which he had been able to collect. The kaligraph has been in practical use for thirty years, but it is very little known. It enabled its inventor, who suffered extremely from the cramp, to write with comfort. He was informed that Mr. Charles Dickens had possessed and used one.

DR. G. W. JACOBY thought this instrument was only palliative, while Nussbaum's was also curative, and could be carried with one. It compelled the writer to use the adductors.

The PRESIDENT replied that an instrument calling into play any other group of muscles of the hand would cause those to be affected after a time.

DR. BIRDSALL thought that writer's cramp is due to cerebral fatigue rather than muscular fatigue, and that instruments for overcoming it could be of only limited benefit.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, May 11, 1887.

THE VICE-PRESIDENT, E. T. BRUEN, M.D., IN THE CHAIR.

DR. S. SOLIS-COHEN reported a case of

ASTHMA TREATED BY BERGEON'S METHOD,

in which immediate relief followed the injection into the intestine of the mixture of carbon dioxide and hydrogen sulphide, as recommended by Bergeon. Having noticed in Morel's paper reports of two cases in which success attended the experiment in one of the Parisian hospitals, and a case presenting itself which offered a fair test, he determined to make the trial.

The patient is a stout married woman, about fifty years of age, of somewhat neurotic temperament, who has for some years been subject to attacks of spasmodic asthma, ordinarily manifesting recurrent paroxysms, lasting ten or twelve days. In the intervals there is neither bronchitis nor dyspnœa. There is no heart lesion. He had seen her in previous attacks, which were relieved by methods with which all are familiar. In one particularly obstinate seizure, the patient was sent to the gas works, and was benefited by inhaling the carburetted vapors there produced. He saw her on the second or third day of the attack, and proposed the injections, but could not obtain consent. Not wishing to complicate the therapeutics too much, in case she

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should later accede to the proposal, he simply prescribed, as a palliative for the dyspnœa under which she labored between the paroxysms, quebracho, in twenty drop doses of the fluid extract, repeated hourly or half hourly, according to indications. This, of course, gave great relief, but a paroxysm recurring in the evening, the patient consented to try the injection. Almost immediate relief was experienced. Some dyspnœa persisted, but there was no further paroxysm, and the dyspnœa gradually lessened, finally disappearing within thirty-six hours. After six injections, the latter ones being prophylactic rather than therapeutic, the patient professed herself feeling better than for years, and auscultation revealed only normal breath sounds.

This is, of course, but a single case; yet having a standard of comparison in previous attacks in the same individual, he could, so far as one case is worth anything, confirm Morel's claim that the rectal injection of carbon dioxide and hydrogen sulphide is beneficial in asthma. Which of the two is the active agent, and whether it would be equally efficacious by inhalation are questions which he did not then desire to discuss.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 11, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

HERNIA OF THE RIGHT OVARY; SUCCESSFUL REMOVAL OF THE GLAND.

THE PRESIDENT exhibited the specimen, and related the following history:

The patient, aged twenty-eight, stated that she had suffered with a right inguinal hernia since the age of twelve, for which she had worn a truss. The tumor had always been reducible, although at times with difficulty. The reporter examined her for the first time on May 5th, when he found a tumor occupying the right labium; it was semi-fluctuating, painful on pressure, and gave no impulse on coughing. From its upper portion a rounded cord, resembling the spermatic cord in the male, could be traced upward to the internal ring. An attempt to reduce the tumor caused severe pain in the head and nausea. The diagnosis of hernia of the right ovary was made, and two days later the speaker cut down upon the mass and found a hernial sac, which was dissected out and laid open. The appearances presented were those of ordinary congenital hernia; there was a persistent pouch of peritoneum, but no intestine could be found. On its posterior wall at the lower end was a mass one-half inch thick, covered anteriorly with thickened peritoneum. At the lowest portion of the tumor there was a quantity of fluid, in which floated a collapsed sac; at its upper portion there was a distinct constriction, which admitted a fine probe, while above this point there was an ordinary hernial tract.

The mass in the posterior wall of the sac was submitted to Dr. Frank Ferguson, the Curator of St. Luke's Hospital, for microscopical examination, who found in it ovarian stroma. The sac was ligated with strong catgut at the level of the internal ring, and was excised, the patient making a good recovery. The speaker added that he had never before had an opportunity to examine a case of hernia of the ovary. The anatomical relations of the gland were the same as those of the testis in a case of congenital hernia.

RIGHT INGUINAL HERNIA WITH NON-DESCENT OF THE TESTIS; CASTRATION.

THE PRESIDENT also showed a specimen which he had removed from a patient, whose history was as follows: A boy, aged seventeen, had never seen his right testicle until three months before, when it appeared in the inguinal canal, and gave rise to severe pain. Shortly after a mass of intestine suddenly came down, and was reduced with some difficulty. This accident occurred on several subsequent occasions, the gut escaping beneath the truss which he wore. The last time it was supposed to be strangulated, and an operation was advised. On May 9th he cut down upon the testicle, which was very small, and removed it with the sac in the usual way The intestine was not seen.

DR. BRIDDON remarked that he had seen but one case of hernia of the ovary, the patient being a prostitute, whose vagina measured only one and a half or two inches in depth, while no uterus could be felt. The external genitals and mammæ were well developed. On either side the canal of Nuck contained a small insensitive body, which could be reduced into the abdominal cavity. The woman subsequently married, and her husband probably never knew that she was not perfectly formed.

DR. YALE asked if this case might not have been one of hypospadias.

DR. BRIDDON replied that the breasts were large and the external genitals normal, although not prominent, while the woman presented decided feminine characteristics.

THE PRESIDENT said, in reply to a question by Dr. Briddon, that there was in the first case the same condition as existed in congenital hernia, the peritoneal pouch remaining open, while the ovary had prolapsed behind the pouch. It was impossible to say how long the ovary had been displaced; the hernia had existed for over fourteen years.

OBSTINATE HEMORRHAGE AFTER TONSILLOTOMY; RECOVERY AFTER LIGATION OF THE COMMON CAROTID ARTERY AND TRANSFUSION OF SALT SOLUTION.

DR. SANDS narrated a case of secondary hemorrhage after removal of the tonsils: Thirteen days ago he was called in consultation by Dr. Speir, of Brooklyn, who requested him to bring his apparatus for transfusion. He arrived at the patient's residence at three o'clock in the afternoon, and found a young man, twenty-four years of age, who had, on the previous day, visited Dr. Fuller's office at 4 P.M., and had both tonsils excised with a tonsil-guillotine. The hemorrhage following the operation was insignificant. The patient returned home, dined, and in the evening went to a wedding, at which he was to act as an usher. While there he began to bleed, and was obliged to return home. The hemorrhage continued all night in spite of the efforts made to control it, by pressure with the fingers, large dressing forceps, and styptic cotton. The bleeding was confined to the right side.

The following morning Dr. Speir was called. He found the patient greatly prostrated and still bleeding.

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He tied the right common carotid artery, but the hemorrhage continued, and transfusion was thought of as a last resort. When the speaker saw the patient the latter was extremely weak, could scarcely speak, and his pulse was small and rapid, at times almost imperceptible. Blood was slowly oozing from his mouth. On examining his throat no bleeding point could be detected, but only oozing from the right tonsil, which ceased after the clots had been scraped away with the finger, perhaps because a better surface was thus afforded for the deposit of coagulum.

The speaker opened a vein in the arm and introduced a pint of saline solution in the course of four or five minutes, using a Colin's apparatus, with which any entrance of air is prevented. During the operation the volume and tension of the pulse improved considerably. Dr. Sands had been informed that the patient's subsequent progress was favorable, and that he was now convalescent. How far the transfusion contributed to this fortunate result he was unable to say, but it may have assisted the recovery by increasing the amount of fluid in the bloodvessels.

It had been learned after the removal of the tonsils that the patient belonged to a family of bleeders, and that he had once before bled profusely after the removal of a tooth. Dr. Sands did not believe that this explanation was satisfactory in the present instance; for if the theory of the hemorrhagic diathesis had been correct, there should have been bleeding from both tonsils, and also from the wound made during ligature of the carotid. The hemorrhage was probably due to the division of a large tonsillar artery. He added that this was the only case of the kind he had seen. He had seen very few "bleeders," among whom was an orderly in Roosevelt Hospital, who bled for several days after removal of a tooth, but eventually recovered. A lady, whom he had seen in consultation several years before, had lost a large quantity of blood after having a tooth extracted; pressure was of no avail in this instance.

DR. BRIDDON said that he had observed a fatal case of hemorrhage in an infant under one year of age, after lancing of the gums, the child not being a bleeder. He had seen two bleeders in whom hemorrhage continued for five or six days, but was not fatal; one patient had purpura rheumatica.

He was once called to attend a young man whose inflamed tonsil had been incised three days before. The patient was much prostrated. On examination a small stream of blood was seen spurting from the incision. He inserted into the cavity the bulbous end of a silver tube, in which were a number of small perforations, and injected through it a solution of persulphate of iron, when the bleeding ceased at once. In the case of the bleeders he had tried every remedy in vain; in one instance the patient had a wound in the lip, and on passing a couple of stitches through the latter, the hemorrhage from the needle punctures was equally troublesome. He believed that Dr. Sands was correct in denying the influence of the hemorrhagic diathesis in his case, because if this had been the cause of the bleeding, the patient would also have bled from the wound made in ligating the artery.

THE PRESIDENT thought that the anatomical relations of the divided vessels often exercise a more important influence in cases of persistent hemorrhage than heredity; arteries are sometimes so situated that they can not retract, and hence coagulation is prevented. As an illustration of this he cited the case of a gentleman who had suffered for twelve years with "hæmoptysis," and had been all over Europe, frequently having his chest examined under the impression that he had phthisis. No evidence of pulmonary trouble could be discovered, and, as none of his physicians had ever chanced to see him when he was bleeding, the cause of the hemorrhage could not be discovered. He happened to examine him while he was spitting blood, and found that it came from the bottom of a tooth cavity. It was cured by removing the tooth. The patient was not a bleeder.

THE PRESIDENT said that he had seen a case of hemorrhage after tonsillotomy in a medical student whose tonsils were removed with a scalpel at Demilt Dispensary. The operation was performed at 1 P.M. At 4 P.M., when the speaker saw him, he was lying on the floor and was very weak. Persulphate of iron and other remedies had been tried in vain. His throat was examined under a good light, and a small spouting vessel was seen on the right side; the hemorrhage was readily controlled by pressure with a sponge on a long handle. In many cases of epistaxis, the speaker added, we could, on careful examination, find a single bleeding point in one nostril, generally on the septum and near the external orifice, where the mucous membrane is very thin, and could stop the hemorrhage by direct pressure.

Dr. RUSHMORE cited the case of a patient in South Brooklyn who belong to a family of bleeders. He bled for three days from a prick of the thumb; he checked the hemorrhage by elevating the hand on a splint.

NEWS ITEMS.

THE AMERICAN CLIMATOLOGICAL ASSOCIATION will hold its fourth annual meeting at Baltimore, on Tuesday and Wednesday, May 31st and June 1st, in the hall of the New Physical Laboratory of Johns Hopkins University, Monument Street, near Eutaw. Dr. Frank Donaldson, Jr., of Baltimore, is the President for the year. The following programme is announced:

TUESDAY, 2 P.M.—Prophylactic Treatment of those who inherit a Predisposition to Phthisis, by Dr. Frank F. Donaldson, Sr., of Baltimore. The Philosophy of Climatic Treatment of Diseases of the Chest, by Dr. James R. Leaming, of New York. An Analysis of Sixty Cases of Asthma, with the Result of Treatment, by Dr. F. H. Bosworth, of New York. The Influence of Sea Air on Syphilitic Phthisis, by Dr. R. G. Curtin, of Philadelphia. Diseased Conditions for which Sea Air is of Doubtful Benefit, by Dr. Boardman Reed, of Atlantic City. An Invalid's Day in Colorado Springs, by Dr. S. E. Solly, of Colorado Springs.

Evening Session, 8 P.M. — The Causes of Cardiac Failure at High Altitudes, by Dr. Frank Donaldson, Jr., of Baltimore. Some Hospital Cases of Phthisis: Marked Improvement under General Treatment, with special reference to Alimentation, by Dr. Frederick C. Shattuck, of Boston. Discussion of Dr. Shattuck's Paper; introducing the subject of Gaseous Injections in connection with Diet, by Dr. E. T. Bruen, of Philadelphia. The Local Treatment of Diseases of the Res-

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piratory Organs, by Dr. B. F. Westbrook, of Brooklyn. The Treatment of the Final Stage of Phthisis, by Dr. John B. Musser, of Philadelphia.

WEDNESDAY, *Morning Session*, 10 A.M.—Observations upon the Sanitary Advantages of Tide-Water, Va., including Virginia Beach, as a Winter Health Resort, by Dr. A. Y. P. Garnett, of Washington. Evergreen Forests as a Therapeutic Agent in Pulmonary Phthisis, by Dr. A. L. Loomis, of New York. Environment in its Relation to the Progress of Bacterial Invasion of Tuberculosis, by Dr. E. L. Trudeau, of Saranac Lake. The Climate of the Sub-Peninsular Pinellas, Florida, by Dr. W. C. Van Bibber, of Baltimore. The Climate of St. Moritz, Upper Engadine, Switzerland, by Dr. Walter Platt, of Baltimore. The Climate of Southern California, by Dr. H. S. Orme, of Los Angeles.

Afternoon Session, 3.30 P.M.—Report of Committee on Mineral Springs, by Dr. Clarence C. Rice, of New York. Classification of American Mineral Waters, by Dr. A. C. Peale, of U. S. Geological Survey. St. Augustine as a Winter Health Resort, by Dr. F. F. Smith, of St. Augustine. Pass Christian, Mississippi, as a Health Resort, by Dr. Charles Le Roux, of Pass Christian.

THE MICHIGAN STATE MEDICAL SOCIETY held its twenty-second annual meeting on May 12th and 13th inst., at Lansing. Thirty papers were read and discussed. The following were elected officers for the ensuing year:

President.—Dr. T. A. McGraw, of Detroit.

Vice-Presidents.—Drs. G. V. Tyler, of Bay City; W. J. Herdman, of Ann Arbor; G. L. Rose, of Decatur; F. J. Gronn, of Big Rapids.

Secretary.—Dr. George Duffield, of Detroit.

Treasurer.—Dr. A. B. Hemenway, of Kalamazoo.

A STRICT QUARANTINE AT NEW ORLEANS AGAINST YELLOW FEVER AND SMALLPOX.—The quarantine system in the Lower Mississippi, initiated by Dr. Joseph Holt, President of the Board of Health of the State of Louisiana, is regarded as eminently fitted to secure all the ends in view, viz., absolute protection against the introduction of yellow fever or smallpox from Cuba and the many West Indian, Central, and South American ports doing business with New Orleans.

Last winter the quarantine wharf, buildings, etc., were destroyed by fire. At once an adjoining wharf was prepared. Improvements were made in securing a fire-proof brick building for the boiler and steam-chest for disinfecting all the effects brought by inward passengers. When a vessel arrives the passengers are sent to the building with all their luggage; the latter is opened, the effects hung upon sliding frames that run into the immense steam-chest, the latter some sixty feet long. They are exposed first to dry heat at a temperature of over 230°. Next live steam direct from the boiler is introduced. They are kept at a temperature of 244° for fully fifteen minutes, a length of time absolutely fatal to all forms of germ life, spores, etc. The goods when taken out are so hot and moist that they cannot be handled. They dry immediately on exposure to the atmosphere. After the luggage has been fumigated, the passengers receive suits of clothing that have been through the disinfecting, germ-killing process, and send the clothing worn on the vessel to be done in its turn.

While the above is going on, the vessel receives the care of a special squad of the quarantine staff. The hatches are put on and ports are closed, and the hold is pumped full of concentrated sulphurous acid vapor, forced in under great pressure. So thorough is its action that, when the hatches are removed, cockroaches, rats, etc., are found dead. The decks, staterooms, etc., are drenched with a solution of mercuric chloride. In short, germs are effectually disposed of and given no opportunity of getting into New Orleans by way of the Mississippi.

All the ports of the Southern States are constantly threatened by yellow fever from Havana and Colon. In both cities it is so common that it excites no remark. Its introduction into the South in 1878, cost 22,000 lives.

THE QUEEN'S PHYSICIANS.—Sir William Gull, being the senior Physician Extraordinary to the Queen, succeeds the late lamented Dr. Wilson Fox as one of the physicians in ordinary. Dr. Reid, who has been for some years her Majesty's resident medical attendant, has been appointed one of the physicians extraordinary. A contemporary society journal states that Sir William Jenner only attends the Queen when "Her Majesty is really unwell." As a matter of fact, Sir William sleeps at the Castle almost every Saturday night when the court is at Windsor.

DR. MORELL MACKENZIE has been summoned to Berlin to attend the Crown Prince of Germany, who has been suffering from an inflamed growth the size of a lentil, on the vocal cord. The growth has been removed, and Prof. Virchow pronounces it innocent in character. The Crown Prince's general health is reported to be good, nevertheless his condition causes considerable anxiety in the absence of more definite information.

COMPARISON OF THE EYES OF WHITES, NEGROES, AND INDIANS.—At various times and in various places the well-known figures compiled by Cohn, Loring, and Derby concerning defective vision have been published. It has remained for Dr. Flavel B. Tiffany, of Kansas City, to compare the eyes of whites, negroes, and Indians. Of these the largest percentage of defective eyes was found at the Indian school at Lawrence, Kansas, due, in the doctor's opinion, to the prevalence of scrofulous diseases among them. The next largest percentage was among the Irish and Germans in the schools in Kansas City; while he found the negroes to have the most perfect eyes of all those examined.—*The Sanitary News*, April 23, 1887.

ANTIQUE JAPANESE OBSTETRIC INSTRUMENTS.—DR. WHITNEY describes in the *Sei-I-Kwai Journal* of March 1887, the following instruments for use in obstetrics, which are described in the earliest Japanese books: A rather curious instrument called the whalebone sling, was the invention of Kagawa Mitsusada, the grandson of Kagawa Genyetsu. By means of this instrument a cord could be passed over any portion of the fœtus, and in some instances, an easy delivery effected. As the results were not infrequently disastrous both to the child and its mother, and, as such instruments were not allowed to be used at all at the court, the son of Mitsusada, Kagawa Mitsustaka, invented a kind of cloth

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forceps, which consisted of a wide band of strong linen or silk, attached to two long slender rods, and rolled upon them (as ancient scrolls were rolled). These were introduced within the uterus and unrolled about the head of the fœtus, after which the sticks were withdrawn, and a flat vectus-like stick of whalebone, having a small hole for the passage of the ends of the cloth, was passed over them, and into the vagina. The cloth then enveloping the head and passing out through the hole in the vectus afforded a strong hold, and made altogether a powerful instrument.

ASPHYXIA FROM SEWER GAS.—A striking instance of the toxic effects of undiluted sewer gas was furnished last week in Paris, where the *concierge* of a house in the Rue de Temple and his wife, together with their son, narrowly escaped death. In consequence of their non-appearance one morning, their room was broken into by the neighbors, when all three persons were found insensible in their beds. The son was the first to recover consciousness, and the two others ultimately rallied, but remained seriously ill. A search was instituted, which resulted in the discovery of a fissure in the soil-pipe, which passed down behind the wall of their room, the gas from which had, in all probability, given rise to these severe symptoms. A persistent bad odor had been remarked for some time previously, but as this is rather the rule than the exception in houses in Paris other than those inhabited by the very well-to-do, no particular attention had been paid to it. This case shows very clearly the danger incurred by allowing a soil-pipe to pass down within a building—a fact which, notwithstanding its simplicity, does not as yet seem to have dawned upon foreign architects, who, whatever their theoretical knowledge may be, so largely ignore the elementary principles of hygiene in their plans for dwelling-houses.—*British Medical Journal*, April 23, 1887.

REFORM IN ENGLISH SPELLING.—PROFESSOR SKEAT, in a recent number of *Notes and Queries*, says: "Those who know the whole history of our spelling from the eighth century to the present time best understand the harm done by the pernicious system of trying to transplant Latin and Greek symbols into the English language. The symbols *æ* and *œ* are not English, and are best avoided. Indeed, this is done in practice when once a word becomes common. *Æther* and *æthereal* have been sensibly replaced by *ether* and *ethereal*. No one now writes *æternal*. *Solœcism* is now *solecism*, and I trust that *primeval* and *medieval* will soon prevail over *primœval* and *mediœval*. Pedantic spellings are most objectionable, because they are useless and unphonetic." We heartily agree with Professor Skeat, and trust that *diarrhœa*, *leucorrhœa*, *dysmenorrhœa*, etc., will soon give place to *diarrhea*, *leucorrhea*, *dysmenorrhea*, etc.

DEATH OF LEON GOSSELIN.—This eminent French surgeon died on April 29th, after a long and painful illness. He succeeded Velpeau as Professor of Clinical Surgery in 1867, and succeeded Nélaton in the Academy of Sciences in 1874; he was made President a few months before his death. His writings are numerous and valuable.

NOTES AND QUERIES.

TO DISGUISE THE ODOR OF IODOFORM.

In THE MEDICAL NEWS of April 30th, there was a note on means to disguise the odor of iodoform. After a large experience in the use of iodoform in Jefferson College Hospital and elsewhere I have found the following formula to be very satisfactory and to mask the odor thoroughly:

℞.—Balsam. Canadensis,
Iodoform . . . . . ää ʒj.
Vaseline . . . . . ʒvj.
M.—Solve.

If you will kindly print this, others will find it valuable.

ANDREW GRAYDON.

PHILADELPHIA, May 23, 1887

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 17 TO MAY 23, 1887.

TAYLOR, MORSE K., *Major and Surgeon*.—Retired from active service May 14, 1887.—*S. O. 111, A. G. O.*, May 14, 1887.

WHITE, R. H.—Promoted to be surgeon with the rank of major, to take effect from May 14, 1887.

ELBREY, F. W., *Captain and Assistant Surgeon*.—Found incapacitated for active service by an Army Retiring Board—sick leave still further extended until further orders on account of disability.—*S. O. 116, A. G. O.*, May 20, 1887.

HALL, JOHN D., *Captain and Assistant Surgeon*.—Granted leave of absence for one month with permission to apply for one month's extension.—*S. O. 74, Dp. Col.*, May 11, 1887.

SUTER, WILLIAM N., appointed assistant surgeon U. S. Army, with the rank of first lieutenant—to rank as such from May 16, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 21, 1887.

CURTIS, L. W., *Passed Assistant Surgeon*.—Ordered to the "Quinnebang."

BAKER, J. W., *Passed Assistant Surgeon*.—Ordered to the Hospital, Chelsea, Mass.

PRICE, H. F., *Surgeon*.—Ordered to Board duty, Annapolis, Md.

GRAVAT, C. M., *Surgeon*.—Detachment from "Michigan" revoked.

LUMSDEN, G. P., *Passed Assistant Surgeon*.—Orders to the "Michigan" revoked.

SIEGFRIED, C. A., *Surgeon*.—Ordered to the "Quinnebang."

PERSONS, R. C., *Surgeon*.—Detached from the "Saratoga."

FARWELL, W. G., *Surgeon*.—Ordered to the "Saratoga."

DIXON, W. S., *Surgeon*.—Ordered to special duty, Baltimore.

ROGERS, B. F., *Surgeon*.—Ordered to Marine Rendezvous, New York.

WELLS, HOWARD, *Passed Assistant Surgeon*.—Ordered to the "Jamestown."

WISE, J. C., *Surgeon*.—Detached from the "Jamestown."

HARVEY, H. P., *Surgeon*.—Ordered to the "Iroquois."

WAGGENER, J. R., *Surgeon*.—Detached from the "Iroquois."

WHITE, DR. S. STUART, of Frederick, Md., commissioned Assistant Surgeon in the Navy, May 19th.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MAY 21, 1887.

GOLDSBOROUGH, C. B., *Surgeon*.—Leave of absence extended to June first, on account of sickness, May 18, 1887.

GUITERAS, JOHN, *Passed Assistant Surgeon*.—Granted leave of absence for four days, May 21, 1887.

ARMSTRONG, S. F., *Passed Assistant Surgeon*.—To remain in charge of service at Memphis, Tenn., until further orders, May 21, 1887.

LEVANT, S. G., *Passed Assistant Surgeon*.—Leave of absence extended thirty days, May 19, 1887.

CARRINGTON, P. M., *Assistant Surgeon*.—Ordered to U. S. Revenue Steamer "Rush," May 18, 1887.

NORMAN, SEATON, *Assistant Surgeon*.—To proceed to Marine Hospital, Baltimore, Md., for temporary duty, May 20, 1887.

HEATH, F. C., *Assistant Surgeon*.—Granted leave of absence for thirty days, May 18, 1887.

WOODWARD, R. M., *Assistant Surgeon*.—Appointed an Assistant Surgeon May 20, 1887. Assigned to temporary duty at the Marine Hospital, Baltimore, Md., May 21, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. L. SATURDAY, JUNE 4, 1887. No. 23.

ORIGINAL ARTICLES.

A CONTRIBUTION TO HEPATO-PHLEBOTOMY.

BY HOWARD A. KELLY, M.D.,
OF PHILADELPHIA

MY experience in abdominal surgery has occasionally brought to my notice cases in which the existence of a tumor was suspected because of the general enlargement of the abdomen, which, however, upon examination has proved to be due to tympany, or ascites, depending frequently for its cause upon diseases of liver or mesentery.

The ascitic cases have always proved more or less disappointing and unsatisfactory subjects for treatment, and it is with a desire to make some small contribution to an exacter knowledge and possibly better therapy of this difficult subject that I have written the following, describing two of my cases which are most valuable suggestively.

The first stands as a type of many others, in which the sole effective treatment consists in a series of tappings more or less frequent. In the second I have detailed my effort to deal more directly with the disease by a short incision—abdominal section—rapid and thorough evacuation, careful inspection, with the end in view of abstracting blood directly from a diseased liver.

CASE I.—J. N., ropemaker, aged thirty-nine, of good habits, with the exception of inordinate tobacco-chewing. He has long been a chronic dyspeptic, but otherwise in good health, until his abdomen began to enlarge. The swelling continued until his girth was fifty-two inches, and he weighed two hundred and twenty pounds in August, 1884, when he came to me for treatment. He then complained most of frequent belching, constipation, discomfort from the extreme distention, and orthopnœa. The skin was muddy, and the conjunctivæ slightly yellow. I drew four bucketfuls of fluid from his abdomen, when a violent cough set in and stopped the tapping. He was tapped a second time in nine weeks, and once more after several months; the last time through a capillary tube, which emptied the peritoneal sac completely, drop by drop, in thirty hours, without any discomfort to the patient. He weighed after tapping one hundred and sixty pounds.

Medical treatment did not at any time affect his condition. He took large doses of ammonium chloride, iodide of potash in large and small doses, arsenic, diuretics, diaphoretics, and purgatives, and mineral waters.

After tapping, a greatly enlarged liver could be felt almost filling the right side of the abdomen. The free border and smooth convexity were readily palpable following a greater curve concentric with the smaller normal curve.

The diagnosis made was enlargement of the liver due to interstitial hepatitis. He still lives, but is no longer under my care. The futility of my efforts here led me to adopt a bolder plan in the next case, cited below.

I had long since convinced myself that the simple exploratory incision into the peritoneum was absolutely free from danger, when surrounded by those precautions which every prudent surgeon now understands. Observation had also shown me that when supposed abscesses were hunted for by plunging a large size aspirating trocar into the liver no bad results ever followed the injury. The largest trocar I had seen thus used was two and a half millimetres in diameter.

Combining these two factors of experience the suggestion was a natural one, that it would be safe to open the abdomen in a case of disease of the liver due to chronic congestion or an acute enlargement, and draw off a considerable amount of blood, and in cases of coexisting ascites to secure at the same time a thorough evacuation of the fluid, even to dryness. Indeed, the dangers of such a procedure, properly performed, are, I am sure, less than those of tapping in the hands of many, to whom it is merely a matter of plunging an unprepared trocar into the abdomen at any seemingly convenient point, and after an evacuation, covering the hole with a bit of sticking plaster. My determination was, in the next case similar to the one detailed, to make a short but fair trial of the usual resources, and then, in event of failure, to open the peritoneum promptly, thoroughly evacuate the fluid, examine the liver by touch and inspection, and in case of congestion, or any acute enlargement, to plunge a suitable trocar into its substance, and draw off a sufficient amount of blood.

In the meantime Dr. George Harley delivered an admirable address upon this subject before the British Medical Association at Brighton last summer. I had the satisfaction of hearing this paper read, and thus felt more assured in my first attempt in having with me the weight of so eminent an authority. Dr. Harley's method was different from my own, but the result aimed at was the same. This will be discussed later.

CASE II.—J. D,, aged forty-three, had been a gin-drinker, although he stoutly denied it, all his life. He stated that he had always been well until a recent fall from a dummy-car, when the abdomen began to swell, and it had continued to enlarge until he measured thirty-nine inches in the girth, when I saw him. His frame was much emaciated, the eyes slightly jaundiced, and his belly greatly distended. He had had a fair trial of appropriate medical treatment at the Episcopal Hospital, without benefit; I also tried the usual remedies without helping him. On

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the twenty-ninth of October, 1886, Dr. T. B. Bradford etherized him, and, assisted by Dr. W. J. Freeman, Dr. R. P. Harris being present, I made a small incision through the thin abdominal walls in the linea alba. The fluid welled out, and by elevating the shoulders and hips, and at the same time rolling him on his side, a perfect evacuation of the fluid contents was secured.

I was then able to catch the liver between two fingers, and with the assistance of a little pressure from without, it was brought fully into view at the incision.

It was pale, hob-nailed, and contracted, and as no possible benefit could reasonably have been expected from puncture and an attempt at bloodletting—if, indeed, any blood would flow from such a gristly structure—the incision was closed. It healed quickly, the patient died forty-seven days after the exploration, in the natural course of his disease.

Thus by a simple operation which may be described, so long as it is confined to a small incision quickly closed, as a modification of the puncture method, I secured a quick, complete evacuation of fluid, and had the liver in my fingers and under my eyes, determining the exact nature, and the exact extent of the morbid process.

The nature of the disease in this particular instance could have been as readily determined after an ordinary tapping, but I was acting under the conviction that the safety of my incision was equally great, and I determined at once the *extent* of the disease, although my *expectation* had been of finding the liver enlarged.

The further procedure would then have been to plunge a trocar three millimetres in diameter into the liver substance, guided by eyes and fingers to the elected point, avoiding gall-bladder, intestines, greater bloodvessels, or the possible simple transfixion of a lobe, and through this draw off a sufficient quantity of blood.

It is for this procedure, which Dr. Harley calls hepato-phlebotomy, that I ask a fair trial, insisting that a diagnostic incision of this sort, with the attendant advantages of inspection and immediate palpation, is far preferable to weeks and even months of protracted treatment in obscure cases. I would especially urge it in ascitic cases where some operation is necessary to remove the fluid.

Dr. Harley's method is different from my own, as he taps the liver (from without) through skin, fasciæ, muscles, and peritoneal reflections; he also extends the indication to include puncture of the tense capsule in chronic hepatitis, mostly malarial. He has found in these latter cases that, just as puncture of the tunica of a swelled testis, or of the sheath of an inflamed sciatic nerve gives relief, so multiple punctures of the painful liver in these cases are valuable. He has made as many as six punctures in one case, using a trocar eight inches long, which enters from right to left up to its hilt; it is then a little withdrawn allowing a channel for the accumulation of the blood, which now flows readily into the aspirator. He justified his procedure by the statement that cupping, leeching, or any abstraction of blood from the hypochondrium has no more effect than so much general depletion; he has also observed for thirty years past that, owing to the elasticity of the liver, no extravasation of blood follows simple puncture of the liver. Thus he was led to adopt the plan he so ably advocated at the Congress.

Out of several cases reported all were relieved, and the first was cured. A lady who had an enlarged liver and anasarca following an attack of acute hepatitis a month before, was tapped in the manner described, and twenty ounces of blood withdrawn. Remedies before inefficient now acted, and after two and a half months the patient was out walking, and at a later date the dulness in the nipple line measured but four and a half inches.

My own method possesses the following distinct advantages over that advocated by Dr. Harley:

In the first place, where ascites coexists, a simultaneous complete evacuation of the fluid is made through the incision. This cannot be secured by tapping high up in the hypochondrium.

Again, diagnosis, often uncertain as to the exact nature of the disease, and always conjectural as to its extent, is made precise by touch and inspection. Implication of neighboring organs is also detected at the same time.

Thirdly, in those cases in which there is a prospect of relief from tapping the liver for blood, the procedure is conducted with a degree of safety and certainty otherwise unattainable. Under full direction of eyes, and fingers grasping the organ, the trocar is guided to the elected spot and the blood withdrawn.

Fourthly, any tendency to ooze after withdrawal of the catheter is at once noticed and checked, either by catching up the lips of the puncture in a suture, or plugging the opening with strands of gut. The amount of blood drawn will vary with the plethoric condition of either patient or liver, and where sufficient is withdrawn to make a decided impression, persistent oozing will hardly occur.

Lastly, all those cases which Dr. Harley has shown may be best treated by multiple puncture to relieve a compressed organ, will, without doubt, be better treated by free *incisions* through the capsule. In puncturing from without it is impossible to say that the trocar has pierced the capsule and gone no deeper, while under control of eyes and fingers free slits may be safely made, extending several inches on the surface, and numerous enough to be *seen* to produce the desired effect.

The points of election for the incision in the abdominal wall are the right hypochondrium, parallel to the lower border of the liver, or the median line above the umbilicus. Thin walls are readily closed by one set of sutures including everything from skin to peritoneum. Fat walls are best closed by including the peritoneum and subperitoneal fat in a separate series of buried gut sutures.

I am aware, in closing, that there is much obscurity in the diagnosis and pathology of diseases of this class, that while we might rationally hope for relief by free depletion in cases of chronic congestion, in enlargement due to cirrhotic process the chances are against the possibility of arrest even by free depletion. Clinically, however, distinctions are not so

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clearly made, and even in hypertrophic cirrhosis, in the absence of an exacter knowledge of the true essence of the disease, its primary cause and *modus operandi*, we cannot predict what result might follow a method calculated to produce a local impression so powerful as this. Dr. Harley's successful case, with the favorable results reported in the other instances, gives us good ground for hope and warrants a further trial.

2134 HANCOCK STREET, PHILADELPHIA.

AN EXPERIMENTAL STUDY OF THE EFFECTS OF PUNCTURE OF THE HEART IN CASES OF CHLOROFORM NARCOSIS.[1]

BY B. A. WATSON, A.M., M.D.,
SURGEON TO CHARITY, ST. FRANCIS, AND CHRIST HOSPITALS, JERSEY CITY, N. J.

THERE has been, already, considerable written on cardicentesis, although the operation was originally proposed and performed in 1882, by Dr. B. F. Westbrook, of Brooklyn, N. Y. Prior to this date several unintentional punctures of the heart had been made without being followed by any unfavorable results.

Dr. John B. Roberts reported two cases of this kind at the College of Physicians of Philadelphia, January 23, 1883.[2] He likewise called attention to the fact that "Cloquet,[3] Bouchut, Legros, and Onimus have also observed the apparent innocuousness of wound of the heart made with capillary trocars. Steiner found, ten years or more ago, that electropuncture needles could be quite safely introduced into either ventricle, provided they were at once withdrawn." Dr. F. M. Corwin reports in detail a case in which a puncture was made in the right ventricle, about one inch from its apex, without giving rise to any unfavorable symptoms.[4] Dr. C. L. Dana has reported two cases[5] in which punctures of the right ventricle were made with negative results. The reports in both these cases are so meagre as greatly to diminish the value which they would otherwise possess; but the comments on cardicentesis are unquestionably highly valuable.

Having referred briefly to the literature of cardicentesis, which possesses an important bearing on our inquiry, although we believe this operation has never been performed on the human subject for the relief of chloroform narcosis, we will now briefly state the observation which prompted us to make these experiments.

While working in my laboratory with my assistant on the evening of February 20, 1887, I killed with chloroform a bulldog which weighed forty-one pounds; and about four minutes after the cessation of respiration, made an incision from the base of the neck, in the median line, to the symphysis pubis. This incision was promptly carried completely through the walls of the thorax and abdomen, thus exposing the heart, lungs, intestines, etc. The heart was observed to be entirely motionless and in full diastole, while the lungs were completely collapsed and lying in the posterior portion of the thoracic cavity, in close proximity to the vertebral column. My assistant, at this moment, seized the heart between his thumb and fingers, when the cardiac action was immediately resumed, and the hand was promptly removed. The contractions promptly became full and regular, and during the first two minutes the pulsations were about sixty per minute, while during the succeeding minute they became irregular, and stopped at the end of this period, but only to be stimulated into action by the second touch—action continuing two minutes—and was the third time started up in the same manner, but this time continued to beat only one-half minute, and could not again be roused into action. The lungs, during this whole period, remained completely motionless, and there were no other indications of life.

These observations suggested to me the possibility of arousing the heart into action, even after the entire cessation of its movements, by the introduction of a needle into this organ. The record of our experiments, which will appear at length in the *Transactions of the American Surgical Association*, shows the result of our labors.

Having completed sixty experiments on dogs, forty of which were on animals suffering from complicating traumatic injuries, while twenty were perfectly healthy and entirely uninjured, we will present briefly some of the results, and our conclusions drawn from this experimental study, with such explanations as will aid the reader in more fully comprehending these reports. There will be found incorporated in my report of these experiments the post-mortem description of the gross lesions; and in all cases where this has been omitted, it has been because the examinations were entirely negative.

In the post-mortem examinations of the forty cases where we had a right to expect traumatic complications, they have been observed and described in fourteen cases. In the other twenty-six cases these examinations did not reveal any gross lesions. Commercial chloroform was employed in all our experiments. In the first fifty cases, which have been reported in the order in which they were performed, the chloroform was administered rapidly, and, so far as possible, atmospheric air was excluded from the animals; while, in the last ten, the chloroform was administered slowly, and contained a large percentage of air. It is, therefore, evident that in the first fifty cases the chloroform narcosis was accompanied by a certain degree of asphyxia. In the first eight experiments no other efforts were made for the resuscitation of the narcotized animals, than the puncture; while in the ninth case artificial respiration was resorted to, and afterward used more or less in all the cases—but employed with especial care in the last twenty—which were the uninjured animals. The cessation of the heart's action and that of respiration, as the result of the chloroform narcosis, have been noted in forty-seven of these experiments. In forty-four cases the heart's action ceased before respiration; but in the fortieth expe-

[1] Read before the American Surgical Association, May 13, 1887.
[2] THE MEDICAL NEWS, vol. xlii. page 45.
[3] Ibid. [4] Medical Record, vol. xxiii. page 263.
[5] Ibid., page 140.

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riment the heart continued to pulsate one minute after the respiration had ceased, and in the forty-second experiment the heart pulsated thirty seconds after the animal had ceased to breathe, while in the thirty-eighth the action of the heart and respiration ceased at the same time.

In thirty-four experiments where the chloroform was administered rapidly and without permitting the atmospheric air to mix with the vapor of the drug during the inhalation, the average continuation of respiration after the cessation of the heart's action was nearly forty-one seconds, while the maximum in this class stands at two minutes and the minimum at five seconds. There were in this same class of experiments ten cases in which the narcotized animals continued to breathe one minute or longer after the action of the heart had ceased, and only five cases in which respiration continued less than thirty seconds after the heart had ceased to act.

The ten experiments in which the chloroform was administered cautiously — atmospheric air being freely mixed with the vapor of the drug during its inhalation—give us a widely different result. In these ten cases there was not a single instance in which the cessation of the heart's action occurred before the animal ceased to breathe. The extremes are recorded in the report of Experiments No. 55 and 51. In the former the heart's action ceased eight minutes before the animal ceased to breathe, while in the latter case the animal breathed only forty-five seconds after the heart's action was arrested, The average duration of respiration after the cessation of the heart's action in these ten cases was two minutes and twelve seconds.

The punctures made in these sixty experiments were as follows: in the right ventricle thirty-eight; left ventricle six; right auricle six; superior vena cava three; inferior vena cava two; apex of the heart two; not stated one. The resuscitations which followed these punctures were as follows: right ventricle nine; right auricle one. The first forty experiments gave us only four recoveries, while the last twenty yielded six.

The question will naturally be asked, Why this disparity? It should be remembered in this connection that the dogs experimented on in the first series were suffering more or less from traumatisms and consequently possessed less recuperative power than the twenty animals used in the second series—which were perfectly healthy and entirely uninjured. Furthermore, the first series of experiments was made especially for the purpose of determining the effects of cardicentesis in cases of chloroform narcosis, while the second series were intended to demonstrate its efficiency when employed in the treatment of these cases in connection with artificial respiration. Consequently, there was no resort in the first eight experiments of the first series, to artificial respiration or any other means of resuscitating these animals; and it is likewise true that in making the other thirty-two experiments of this series we were chiefly intent on observing merely the effect of the punctures, and consequently did not make any systematic effort at resuscitation.

The most important question which presents itself here for our consideration is, What are the effects of a puncture of the heart in cases of chloroform narcosis? Let us now carefully examine the record of these experiments and determine their bearing upon this query. We find that there were sixty cardiac punctures, and that the heart only failed to respond in Experiments 38 and 58. A reference to the report of these cases shows that in the former instance the puncture was made one minute and thirty-five seconds after the cessation of the heart's action and one-half minute after the animal had ceased to breathe, while the post-mortem examination revealed the fact that the needle had passed through the base of the right lung, entered the right auricular appendage, and passed through this into the auricular cavity. This needle had failed to indicate any responsive action merely because it was so firmly held by the tissues through which it passed as not to be swayed by the feeble pulsations of the heart. In the latter case the report shows that the puncture was made four minutes after the cessation of the heart's action and one minute after the animal ceased to breathe. In this instance the needle was entirely free to move, and it is, therefore, evident that it entirely failed to excite any responsive action in the heart—probably because of the loss of its vital power.

A further examination of these reports shows that the needle puncture, unaided by any other means, was sufficient to arouse the heart into action in twenty-two of these experiments, while the average time which elapsed between the cessation of the heart's action and the introduction of the instrument was one minute and twenty seconds, the longest period being two minutes, and the shortest, one. The cardiac action thus excited continued in two cases, the other functions were promptly reëstablished, and the animals fully recovered.

The real point of interest now centres in this question, Can the heart which has ceased to pulsate be goaded into action by a needle puncture? If it be admitted that in these twenty-two experiments the heart had absolutely ceased to perform its functions, but was aroused into action by the needle puncture, then the affirmative is proven. Should it, however, be charged that the experimenter had failed to demonstrate the cessation of the heart's action prior to the introduction of the needle, then the value of these experiments would be seriously questioned. Consequently we will introduce other evidence, in order that the value of these experiments may be made more apparent. It will not be denied that the swaying movements communicated to a needle by the pulsations of the heart, when it has been introduced into that organ, should be accepted as positive proof of its action. The needle in this position transmits every movement of the heart as accurately as it is done by the writing lever of the sphygmograph. Consequently the experimenter, who carefully watches these movements, is enabled to comprehend the peculiarities of the same.

An examination of the reports of these experiments shows that in thirty-two cases the heart did not promptly respond to the introduction of the needle, but its action was delayed, in some instances,

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as long as three minutes, while in other cases only a few seconds.

The following extracts from the report of these experiments are here introduced for the purpose of illustrating the subject under consideration. The heart was punctured in Experiment No. 21 about three-fourths of a minute after the cessation of its action. The needle had remained in the organ two minutes before there was observed the slightest resumption of the heart's action. In the fifty-fourth experiment the puncture was made one minute and forty-five seconds after the cessation of the heart's action, and forty-five seconds after the animal had ceased to breathe. The heart responded to the needle a half minute after the puncture was made. Artificial respiration was then commenced, and in two minutes the dog was breathing without assistance. The respirations were, at first, very shallow, but gradually improved, and the dog fully recovered.

The last report fully shows that there had been a cessation of the heart's action, and that its resumption occurred without the use of any other means than the introduction of the needle. Additional evidence of this character is found in abundance in the report of our experiments, but it is not considered necessary to proceed any further in this direction.

Attention is now called to the fact that in nearly all our experiments with chloroform we have observed that cessation of the heart's action commonly occurs prior to the stoppage of breathing; but when the needle has been previously introduced into this organ the order is reversed. In support of this the reader's attention is now directed to the following extract from the report of the tenth experiment: The chloroform was reapplied, and respiration ceased after one minute, but the heart still continued to pulsate four minutes. . . . The needle had been allowed to remain in the heart during the whole period of our experimentation.

Having already supplied the essential facts found in the record of the experiments bearing on cardicentesis in chloroform narcosis, the question may be properly asked, Should the puncture be carried into the heart cavity, in order that blood may be abstracted?

The physiological conditions of the heart and lungs in chloroform narcosis are well understood by the medical profession. The heart is always found in diastole, and the veins in the lungs greatly distended with blood. I have made nearly one hundred and sixty post-mortem examinations of dogs killed with chloroform, and have uniformly observed these conditions, except in cases where there had been a very free escape of blood, just prior to the death of the animal. It may, therefore, be naturally claimed that the blood may be advantageously drawn from the right side of the heart in cases of chloroform narcosis. I am likewise fully assured that this procedure is not only theoretically correct, but also entirely practical and highly advantageous.

Let me ask if more rational treatment can be adopted in cases of chloroform narcosis than the puncture of the heart and the extraction of blood. In those cases in which there is already complete cessation of the heart's action and respiration, what are the indications for treatment? The urgent indications are to restore promptly these important suspended functions.

It may, however, be urged against this operative procedure that it is not entirely free from danger, but the same argument may be urged with equal force against any other operation. Furthermore, the desperate condition of a patient who is suffering from chloroform narcosis may justify a resort to measures which, otherwise, should not be employed.

The only deaths observed during my experimentation, which may be fairly charged to the puncture, are those in which the vena cava was punctured. In these cases a profuse hemorrhage into the thoracic cavity unquestionably influenced the fatal termination. The punctures made into the auricle were, in some cases, followed by the flow of considerable blood into the pericardial sac, and are not entirely free from danger. The punctures made into the ventricles are not attended by any leakage from the interior of the organ, but there were occasionally found a few drops of blood within the pericardial sac, which had been poured out from some wounded cardiac vein.

The experimental study of cardicentesis, in cases of chloroform narcosis, has enabled me to reach the following conclusions:

Firstly. The puncture of the heart, especially of the right ventricle, stimulates the muscular contractions, and may be advantageously employed in the treatment of this morbid condition.

Secondly. The best results are obtained when abstraction of blood from the cavity of the ventricle is combined with the stimulating effects produced by the entrance of the aspirator needle.

Thirdly. The puncture of the right ventricle is a safer and more efficient operative procedure than the puncture of the right auricle.

THE POLITZOMETER,

AN INSTRUMENT TO INCREASE FACILITY AND PRECISION IN THE INFLATION OF THE MIDDLE EAR.

BY ARTHUR E. PRINCE, M.D.,

OF JACKSONVILLE, ILL.: OPHTHALMIC AND AURAL SURGEON TO THE ILLINOIS STATE INSTITUTIONS FOR THE DEAF AND DUMB AND BLIND.

THE merit of the method of inflating the middle ear originated by Prof. Adam Politzer, of Vienna, has received universal acknowledgment, notwithstanding the difficulty of regulating the force to be used, and of securing, in the act of swallowing, perfect coördination between patient and physician. The method has justly been criticised as attended by the danger of overdistending the drums, which, besides being an absolute injury, may cause such suffering as to destroy the confidence of the patient. This is especially true with children and timid persons, who may fail to swallow at the proper time and thus misdirect the force of the blast, with the unpleasant consequence of either filling the stomach with air or blowing the water out of the mouth.

To avoid the disagreeable necessity of repeatedly

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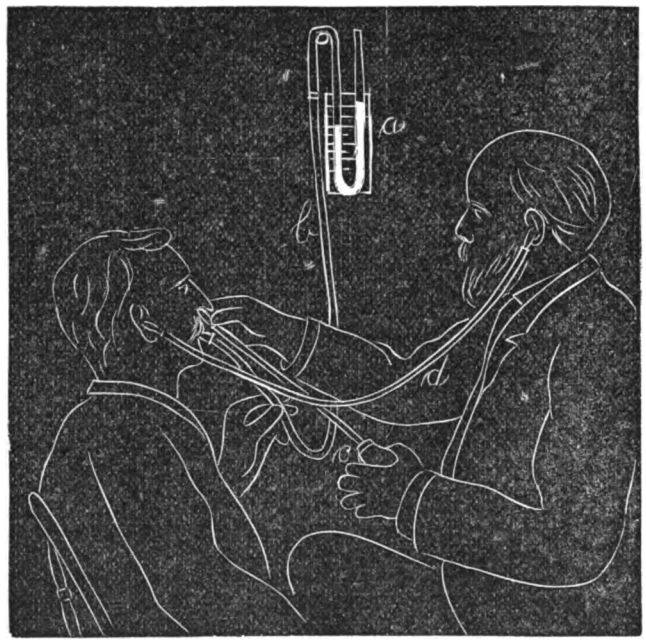
swallowing water, Gruber required the patient to pronounce the word "*hock*," holding the *k* sound, in the formation of which the parts are in the same position as in the act of swallowing. This was a valuable suggestion, and when correctly performed is often preferable to the use of water; but, unfortunately, requires too much intelligence to make it very available in just that class with whom trouble is experienced in the use of water.

An appreciation of the difficulties and uncertainties arising from the impossibility of adapting the power of the blast to the condition in hand, the inflation of the drum requiring in one case two or three ounces, and in another as many pounds pressure per square inch, prompts here the recommendation of a means by which these difficulties may largely be overcome.

To this end my thoughts were first directed by an instrument sold for inflating the middle ear, consisting of a simple tube reaching from the mouth to the nose, and through which one may more easily inflate the middle ears than by the Valsalvian method. Its success depends on the well-known fact that in the act of *blowing*, the palate is driven against the posterior pharyngeal wall, closing the naso-pharynx.

FIG. 1.



a. Scale. *b*. Connecting tube. *c*. Politzer bag. *d*. Diagnostic tube.

My first experiments were made by requiring the patient to make an effort to blow the bottom out of a drachm vial, during which act the air was driven into the middle ears by the compression of the bag in the usual way. The success of this prompted the substitution of a rubber tube communicating with a mercurial column supplied with a graduated scale. This acts as a measure of the resistance required to overcome the obstruction presented to the entrance of air through the Eustachian tube. Such an instrument, for which there occurs to me no better name than that of *Politzometer*, has proved satisfactory during the past four years. Its operation will be made apparent by reference to the accompanying crude outline taken from a photograph of the original instrument in operation. (Fig. 1.) The depression of the column of mercury in fractions of an inch will represent in corresponding fractions of a pound, the pressure by which the palate is forced upward, thereby closing the naso-pharynx. At the same time, in the act of blowing, the tensor palati molis, levator veli palati, and salpingo-pharyngeus muscles, which operate on the pharyngeal mouth of the tube, are favorably conditioned with reference to accomplishing the inflation of the drum. The impulse of the air blown through the nose into the naso-pharynx is resisted by the palate to a degree indicated by the depression of the mercurial column, and a corresponding pressure, plus the momentum of the blast, is expended in dilating these tubes and inflating the tympani. Under normal conditions this will be accomplished by a mercurial depression of one-eighth to one-fourth of an inch.

In my experience I have noted the following advantages to be derived from the use of the politzometer:

1st. The operation becomes one of greater precision, subject to the immediate inspection of the physician, and free from the discomforts which attend the use of water.

2d. By mild measures and a little tact the difficulties met with in the case of children and timid persons, are largely overcome, enabling any intelligent physician to deal successfully with those puerile catarrhs with Eustachian closure, which are so often neglected until no remedy is available.

3d. By ascertaining the minimum of depression required for the inflation in each individual case, overdistention is avoided by the escape of the air into the pharynx.

4th. The minimum of depression constitutes an approximate index for comparing the conditions at intervals during treatment.

5th. By finding the air enter the middle ear with a normal minimum of mercurial depression, the absence of any obstruction is demonstrated, constituting an element of diagnostic as well as prognostic importance.

In chronic middle ear deafness, should no obstruction be found, or should obstruction be found to diminish rapidly under treatment, without corresponding improvement in the acuteness of hearing, pathological conditions, independent of the tube, will be found to exist in the drum, rendering the prognosis proportionately unfavorable.

Experience in the use of the instrument has not failed to develop the fact that it falls short of perfection. The success of its operation depends on the power of the expiratory muscles—and since the maximum power of these muscles seldom exceeds

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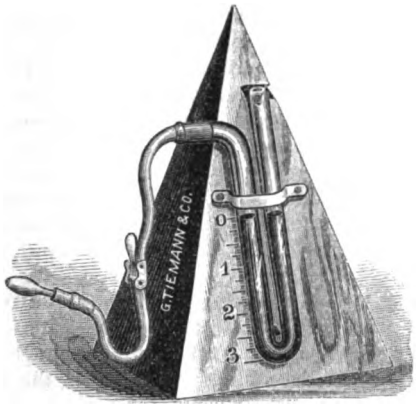
three pounds to the square inch, an obstruction which exceeds that degree must be overcome by the catheter or bougie. In many persons the maximum power is so feeble as to render the use of water or the sound *k* more available.

The nose-piece of the inflating apparatus should have a free opening and be adapted to fit the nostril. Experience condemns the projecting rigid extension which is liable to cause pain, destroy confidence, and rob the treatment of its usefulness. It should be placed in position while the mercurial column is depressed and the remaining nostril closed the last thing before inflating, else the velum palati may drop before the bulb is pressed, when the effort will be expended in driving the air into the stomach.

FIG. 2.



NOTE.—In a conversation with Dr. Tansly, of New York, I was told that he had recommended that in place of swallowing, the patient blow forcibly with puckered lips. In *Ophthalmic and Otic Memoranda* (Roosa and Ely) it appears that Dr. Holt, of Portland, advises closing the lips tightly and distending the cheeks with air.

RECURRENCE OF SYMPTOMS OF POISONING, AFTER SNAKE-BITE.[1]

BY H. C. YARROW, M.D. (UNIV. PENNA.),
OF WASHINGTON, D. C.

IN 1884, I reported, in *The American Journal of the Medical Sciences*, 1884, n. s., lxxxvii. p. 422, a case of copperhead snake-bite, and gave a detailed account of the symptoms, and a *résumé* of some of the literature on the subject of poisonous snake-wounds. Care was taken to state particularly that several cases had been published, in which, after varying periods of time, a recurrence of poisonous symptoms took place, generally on, or about, the anniversary of the bite, and I am now able, after having watched two cases, to add the weight of my testimony in behalf of the recurrent theory.

Before doing so, perhaps it may be well to recapitulate briefly the evidence which we possessed at the date of my previous paper. The first case was reported by Dr. Sweeny, of Rushville, Illinois, in the *Cincinnati Lancet and Observer*, 1860, n. s., iii. p. 318, who stated that his patient, a male, who had been bitten many years before (nearly thirty) by a copperhead, suffered from painful symptoms in the fingers which had been injured, analogous to those which he had experienced at the time of the accident. These symptoms continued for some time. Dr. Wm. Stockbridge, in the *Boston Medical and Surgical Journal*, 1843, xxix. p. 40, reports three cases of copperhead bite with recurring symptoms; the first, a boy, aged ten, who received the wound on his leg. Ordinary remedies were applied, and he recovered, but for eighteen years thereafter, precisely on the anniversary of the bite, he had a recurrence of the symptoms similar to those first experienced. Gradually the attacks became less marked, and finally disappeared. A female slave, who had been bitten, suffered for a period of ten years, and a lady was affected in the same way for twelve years. Dr. R. T. Coleman, in the *Virginia Clinical Record*, 1872–3, ii. p. 137, reports two cases of moccasin bite, in which a scaly eruption showed itself for several successive springs, in individuals under his care. Dr. H. G. Piffard reports a recurrence of a skin affection for several years, in a female bitten by a rattlesnake.

The case of a photographer, bitten by a copperhead, which I reported as before mentioned, I have watched carefully from 1883 to 1886, the last attack commencing on May 30th, the anniversary of his injury, and lasting over a week. His condition about the acme of the attack was as follows: Pulse quick; complains of general malaise; pain and stiffening in the bitten finger, which extends up the arm; surface of hand shows bluish mottling, with lines of redness extending as far as the shoulder along the course of the lymphatics. He had slight chilly sensations, and some fever. Obliged to quit work, as he could not concentrate his attention on it. Has taken nothing but whiskey and quinine. These notes were read to him, and he stated that they represent fairly his condition at each recurring period since the bite.

Dr. W. M. Gray, Microscopist of the Army Medical Museum, secured at this time a specimen of blood from the bitten finger, and reported as follows: White blood cells increased in quantity in the proportion of 3 to 500 of red. They present a highly granular appearance, and contain numerous vacuoles; where some few have burst and exuded the granules, they stain like, and resemble, micrococci. The red corpuscles are normal; but when they assume the crenated form, which is common to them, they differ from the ordinary crenation usually seen, assuming an appearance like chestnut burrs. The drawings made by Dr. Gray represent this appearance. It may be stated that the microscopical examination of the patients' blood made just after the bite, by Dr. McConnell, showed that the white corpuscles were relatively few in number, and that most of the red corpuscles were crenated. Dr. Isaac Ott states that the blood, after copperhead poisoning, shows no microscopic changes in its cor-

[1] Read before the Medical Society of the District of Columbia, Washington, D. C.

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puscles or spectrum, but I am unable to say if he has had an opportunity of examining the blood from a person recently bitten by the snake.

The other case under observation is that of Mr. A. Zeno Shindler, one of the artists connected with the National Museum, who was bitten June 2, 1882, by a "Florida harlequin snake" (*Elaps fulvius*), No. 12779 of the National Museum Reserve series, and whose accident was mentioned in the paper which I read. Mr. Shindler informs me that he made an excellent recovery from the bite, under the care of Dr. Taylor, but that in about a year he was troubled with considerable pain in the injured finger, and a small abscess formed at the seat of the bite, with some suppuration; and that each succeeding year since he has been troubled in the same way, and in addition to this he has lost each year the nail from the affected finger. On the last occasion, however, suppuration was prevented by the application of bandages saturated with aqua ammonia, which were used as soon as the symptoms developed.

Is there any explanation to be made of this peculiar occurrence of symptoms long after the original injury? Are they due to neurotic influence or hyperæsthesia of the affected part in consequence of the mind dwelling upon the accident at the succeeding anniversaries? Such might be the case for a few years, but it seems almost incredible that this should be the cause in the cases reported by Drs. Sweeny and Stockbridge, in which the patients suffered for eighteen and thirty years. Mr. Shindler states very positively that in his case he is quite sure that neurotic or mental influence has nothing to do with a return of the symptoms, for he is only aware of the anniversary of his bite by the pain which comes on at this particular time, and generally at night, it being so severe as to awaken him from sleep.

Another interesting fact is that recurring symptoms mostly occur after bites of the serpents of the genus *Ancistrodon* (copperheads and moccasins), but few cases being found on record from the bites of *Elaps* (vipers) and *Crotalus* (rattlesnakes). I have studied the matter carefully, but have been unable to solve the problem, and simply record the facts.

MEDICAL PROGRESS.

MICROSCOPIC EXAMINATION OF THE INTESTINAL CONTENTS OF NATIVES OF INDIA WHO PERISHED WITH CHOLERA.—WEISSER and FRANK, of the Institute of Hygiene in Berlin, have published the results of Koch's examination of a large number of microscopic preparations made at the Sealdah Hospital at Calcutta. Dejecta from 90 cases were examined, in 83 of which the comma-bacillus was found. In the 7 cases lacking the bacillus the presence of large quantities of blood, or defective preparation of the slide, accounted adequately for the failure to find it. The conclusions drawn from these cases were:

1. Microscopic examination alone generally suffices to demonstrate the presence of the comma-bacillus in cholera dejecta.

2. This is true in the most acute cases of cholera.

3. The number of bacilli is generally greater the earlier in the disease death occurs; when the fatal result is late the number is much smaller.

4. In cases dying from cholera typhoid, and not genuine cholera Asiatica, the bacilli are wanting.—*Deutsche medicinische Wochenschrift*, May 5, 1887.

TREATMENT OF VARICOCELE.—DR. THIRIAR, of Brussels, in a clinical lecture on the "Surgical Treatment of Varicocele," after mentioning that numerous methods of operation were in former times proposed and practised—such as castration, the section of the vas deferens, and the ligature of the arteries of the cord, which necessarily interfere with the functional activity of the testis—spoke of the modern or therapeutic method as consisting essentially in the arrest of the circulation in the venous plexuses surrounding the vas deferens. Until quite recently, however, so many accidents—some of them fatal—followed operative procedures of this kind that many surgeons objected to resort to them for an affection which, however trying to the patient, cannot be considered as dangerous to life. Since the adoption of antiseptics, the danger of these operations has been reduced almost to *nil*. The operation practised by Dr. Thiriar is the combination (proposed by Guyon) of Sir A. Cooper's plan of excising the skin with the old method of excising the varicose veins themselves; Heurteloup's plan of excising a flap of skin from the posterior surface of the scrotum he does not approve of, following Guyon and other surgeons in believing that the varicose condition is usually in the anterior plexus. His plan is as follows: An elliptical flap of skin is excised from the front of the scrotum, and the bundle of veins dissected out and tied in two places, the intermediate portion being excised if the tumor is considerable. The dissecting out of the veins is a somewhat difficult matter, as there are several fibrocellular layers to divide or tear through; the artery has to be carefully separated from the veins, a proceeding which up to the present time Dr. Thiriar has not found attended with difficulty. The wound is washed with a corrosive sublimate solution, and the lips united by a continuous suture, which is the form Dr. Thiriar prefers as a rule; antiseptic dressings and compress bandages are applied, and in a few days the patient is discharged permanently cured.—*Lancet*, April 30, 1887.

ANTIPYRIN IN WHOOPING-COUGH.—SONNENBERGER has treated seventy cases of whooping-cough with antipyrin, in doses from one-sixth of a grain in very young children, to eight and fifteen grains in older children and adults. It was given in water and fruit juices, and was readily taken. Collapse did not occur. All of the cases were favorably influenced, and but five deaths occurred, two from pneumonia, and three from tuberculosis.—*Wiener medizinische Presse*, May 1, 1887.

ARTIFICIAL AND HYPERALIMENTATION IN PHTHISIS.—In an account of the effects of artificial and hyperalimentation, as practised in Professor Pel's wards in Amsterdam, DR. VAN EEDEN states that the meat-powder treatment introduced by Débove (which he had had an opportunity of studying in Paris) is always of service in phthisis

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when the disease is not very far advanced, and when it is not of a "malignant" nature. The cases which do best under this treatment are those in which there is no hereditary taint and where the disease has progressed regularly, with a not very rapid loss of strength, and with only slight hectic, anorexia, anæmia, and emaciation. The chances of successful treatment are slight where the disease has made rapid progress, with a continuous high temperature. The existence of a considerable degree of pyrexia is, however, no contra-indication to the use of the treatment. If diarrhœa and gastric irritation are produced by the artificial alimentation, it is best to discontinue it. In order to accustom the stomach to the meat powder, small quantities only should be given at first—not more than about half a pound during the twenty-four hours; this amount may gradually be increased to one pound and a half. The use of the œsophageal sound for the introduction of the food is considered by Dr. van Eeden as advisable in all cases, and imperatively necessary in hyperalimentation. Quantities exceeding three pounds of meat powder per diem, however, are not by any means always required, and should only be given when smaller amounts do not succeed, and where the patient bears the treatment well. The method must be diligently and patiently practised, and the weight of the patient accurately noted. Dr. van Eeden remarks that so little is known of the way in which hyperalimentation controls the development of tubercle, that whoever attempts to practise Débove's treatment must be prepared to meet with many difficulties and disappointments. Notwithstanding this, however, he had witnessed some surprisingly good results from its employment.—*Lancet*, April 30, 1887.

FORMULA FOR THE HYPODERMATIC USE OF CARBOLICUM OXYDATUM.—SCHADEK gives the following formula as used by hypodermatic injections in the gluteal region in ten cases of syphilis:

℞.—Hydrarg. carbolici oxydat. . .	gr. 30.
Mucilag. gum. arab. . . .	ʒ 1.
Aquæ destillat.	ʒ 25.

One-half the contents of a syringe containing three-tenths of a grain was injected every second or third day.

Abscess and infiltration seldom occurred.—*Monatshefte für praktische Dermatologie*, 1887, No. 8.

PHENATE OF COCAINE.—VIAU, of Paris, has mixed one part of phenic acid to two of cocaine, heated gently, and obtained a substance which gave good results in eighty-six cases of extraction of teeth, by producing local anæsthesia. This substance is injected in solution by a fine syringe into the tissues about the teeth, care being taken to avoid the dropping of the substance into the pharynx, after which the mouth is rinsed with cold water. Local anæsthesia is generally sufficiently advanced to allow extraction in five or ten minutes.—*Les Nouveaux Remèdes*, April 27, 1887.

NUTRIENT ENEMATA.—The *Therapeutische Monatshefte* for April, 1887, gives the following formula used by Ewald, and adds further details in the preparation of nutrient enemata.

The simplest enema is prepared by beating up three or five eggs with five ounces of a solution of grape sugar fifteen or twenty per cent. in strength; this should be gently injected as occasion offers.

To allay irritation starch solution or mucilage water may be added, making the liquid of greater consistence; or a few drops of tinct. opii may be used. Before the nutrient enema is given an injection of tepid water or solution of common salt, eight and a half ounces of fluid, should be used, and the nutrient enema not introduced until the bowel is thoroughly emptied. If this precaution is neglected, the nutrient enema may be immediately rejected. An enema should never be larger than eight and a half ounces. It is better when this quantity is given in two or three doses during the day.

Nutrient enemata may be prepared as follows, when more elaborate methods can be followed:

Two or three eggs should be beaten with a tablespoonful of cold water. As much powdered starch as will lie upon the end of an ordinary kitchen knife should be added, with half a cup of twenty per cent. solution of grape sugar (obtainable at druggists); the whole should be heated gently, and a wineglassful of red wine (claret, etc.) added.

The mixture should be gently beaten, care being taken that it is not so hot as to coagulate the albumen of the eggs used. The whole should not exceed half a pint in bulk.

If meat peptone or milk peptone is convenient, a teaspoonful of the peptone should be added to the sugar solution; it is not necessary, for eggs so prepared will be readily absorbed.

The injection should be given with a syringe having a long, flexible tube, or with an irrigator which has a flexible tube with large opening.

After injections the patient should lie quietly upon the back or side for some time.

THE TREATMENT OF CATARRHAL JAUNDICE.—DR. GLUZINSKI, writing in a Polish journal, states that in cases of catarrhal jaundice he has found excellent results follow the treatment recommended by Krull, viz., the repeated injection into the bowel of large quantities of cold water. This increases the peristaltic action of the intestines, and removes any mechanical obstacle to the flow of bile. Again, as has been shown by Röhrig and Mosler, who injected large quantities of cold water into dogs, the bile is thus rendered both more liquid and more abundant, so that it more easily overcomes any obstruction. At first water at 59° F. is injected into the bowel until the patient complains of a feeling of distention in the abdomen. He is then made to retain it as long as possible. Most patients manage to retain two litres for from a quarter to half an hour. The next day the enema is repeated, but with water about 4° higher. The temperature is again raised on each succeeding day, but when 72° has been reached no further increase is made. The reason of the increase is that the repeated introduction of cold water is apt to irritate the mucous membrane of the bowel. Altogether four or five enemata are sufficient to produce the desired effect. The increase of the biliary secretion may be judged of by the color of the feces. Of course, the diet is attended to in order to prevent a recurrence of the affection.—*Lancet*, April 23, 1887.

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THE ETIOLOGY OF DIABETES.—The *Lancet* of April 30, 1887, reports, in the recent Congress of German Physicians, the following of interest:

Of very far-reaching and undoubtedly also practical importance will prove the experiment of the young PROFESSOR VON MEHRING, of Strassburg, who produced diabetes in fasting dogs by large doses of florhidein, an extract of the root of the plum-tree, and who expressed his conviction that the sugar is formed solely by decomposition of albumen. These researches and operations seem worthy of special notice, as they are calculated to modify profoundly the views held of this disease. Leube congratulated von Mehring, and gave expression to the hope that we might now succeed in getting animals continuously diabetic.

LIGATION OF THE INNOMINATE.—DURANTE'S recent case is reported in the *Lancet* of April 30, 1887, as follows: The patient, a man of about forty-five years, was suffering intense pain from pressure by a very perceptible aneurism of the second part of the right subclavian. Other means having been tried with no good result, Professor Durante, of Rome, determined upon ligature of the innominate. Accordingly, on March 25th, the operation was performed, with strict antiseptic precautions, the vessel being tied in two places—viz., immediately below the junction of the subclavian and common carotid, and again slightly lower down. The vertebral artery was also tied. The ligature used was No. 3 carbolized catgut. The after-progress, up to the present date (April 5th) has been most satisfactory. Circulation in the right upper limb and side of the head has been completely restored, and the patient's general health is good, with the exception of obstinate constipation, which may account for a rise of temperature having occurred. The external wound, excepting a small drainage aperture, has healed by first intention.

TREATMENT OF PHTHISIS BY MENTHOL. — ROSENBERG has obtained the following results: Inhalations of 3 per cent. solution, and doses of $\frac{3}{8}$ to $\frac{1}{4}$ of a grain, and later 15 grains to 20 grains six times daily were given. Early unpleasant effects—burning in the throat, a feeling of heat, giddiness and headache—disappeared in four to six days. Early good effects were increased appetite and lessened night sweats. Lessening of secretion and irritating cough followed. A decided general benefit resulted. Temperature and bacilli were uninfluenced.

If any permanent benefit can be expected from this treatment it is in beginning phthisis. The following is Langaard's formula for menthol in pill form:

℞.—Menthol . . . . . gr. 30.
Sacch. albæ,
Gummi Arab. . . . . āā gr. 15.
Aq. dest. . . . . q. s.
Ft. pil. 20 in num.
Cover with gelatine.

Each pill contains 1½ grains menthol.—*Wiener medizinische Presse*, April 17, 1887.

ABORTIVE TREATMENT OF BOILS BY INJECTIONS.—BIDDER has had excellent results in the treatment of boils by injecting beneath the skin, at the margins of the area of inflammation, a two per cent. solution of carbolic acid. When suppuration occurred an incision was avoided by aspirating the abscess with a fine needle, and injecting the carbolic solution.—*Berliner klinische Wochenschrift*, No. 14.

HOW TO SUTURE THE INTESTINE. — SIR WILLIAM MACCORMAC, in an oration on abdominal section reported in the *British Medical Journal* for May 7, 1887, writes as follows:

There are three conditions required to insure successful suture of the intestine:

1. Two adequately broad and sufficiently wide surfaces of peritoneum must be brought into contact.

2. The mucous membrane must be excluded, for when the needle passes through the whole thickness of the gut, peritonitis generally ensues from leakage taking place along the line of the thread.

3. Rapidity of execution is of extreme importance, and that form of suture is the best which can be effectively applied in the shortest time.

In 1826, Lembert introduced a method of bringing the two adjacent serous surfaces into contact, avoiding penetration of the mucous coat. It is the preferable one to employ in all wounds of the bowel; sufficient inversion may be thus easily accomplished without causing obstruction of the lumen of the tube; when the wound is small or incised, the needle may be introduced a line and a half or two lines from the margin, and then brought out at the edge of the serous coat, the same being done on the opposite side. This will suffice in clean-cut wounds; but, where the edges are bruised, it is best to exclude them by entering the needle about three or three and a half lines from the margin, and carrying the suture through the bowel a line distant or more from the edge. The number of stitches must be sufficient to bring the parts everywhere into accurate contact, and care taken not to tie the sutures too tightly, as it may lead to gangrene and consequent failure to procure union. Experimentally, this has been found to be the most frequent cause of non-union. The ends of the sutures are cut short, and the intestine returned to the abdominal cavity. When the surfaces are drawn together sufficiently to bring them fairly into contact, the subsequent swelling will hold the parts firmly until the rapidly formed adhesive material securely glues them together. When the omentum is much injured, it is probably best to excise the damaged parts after applying ligatures.

EXAMINATION OF A STOMACH WHOSE PYLORUS HAD BEEN RESECTED FOR CARCINOMA FIVE YEARS BEFORE. —WÖLFLER, of Vienna, reports a case in which in April, 1881, he had resected the pylorus for carcinoma. Death occurred five years after from exhaustion produced by a disseminated return of the disease; the patient's life had been comfortable, and almost free from stomach disturbances. Examination showed the stomach nearly normal in size. The site of the suture could not be found externally. When the duodenum and stomach were opened a constriction, with folds of mucous membrane, was seen at the former site of the pylorus. On microscopic examination mucous glands but no peptic glands were found, and a compensatory hypertrophy of muscle and connective tissue forming a new sphincter.—*Wiener med. Presse*, May 1, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JUNE 4, 1887.

WAS IT A DEATH DUE TO ETHER?

WE reply in the negative. The case in question occurred in Philadelphia, last week, and was the subject of comment in the newspapers, and of an extra-judicial opinion by the Coroner. The facts with which we are concerned are these:

A minor surgical operation being necessary, ether was employed as the anæsthetic. No accident happened during the anæsthesia, and no unusual incidents followed the operation until the fifth hour thereafter, when the patient suddenly expired. A jury summoned by the Coroner rendered a verdict which ascribed the death to ether, but implied no censure of the two physicians in charge of the case. The coroner, however, animadverted with no little severity on that lack of skill which failed to detect the "fatty heart." The Coroner's physician, who conducted the autopsy, testified to the existence of fatty degeneration of the cardiac muscular tissue, and without hesitation referred the fatal ending of the case to the action of ether. An examination of the brain appears not to have been made, nor was the vascular system inspected with the view to detect thrombus or emboli. Such omissions, if made, must cast doubt over the conclusions arrived at from insufficient data, and are the more reprehensible since the physicians are held up to public reprobation when innocent of offence.

To ordinary observation, without prejudice, the two facts of the case—the inhalation of ether, the death several hours after—seem too remote to have the relation of cause and effect. The supposed fatty heart bore the strain of the ether inhalation and the surgical procedure, and yet succumbed when the anæsthetic was no longer in action, and the shock of the operation, if any, had passed away. It is no doubt true, as recently stated in these columns, that a fatal result may occur from ether inhalations several days after, because of pulmonary inflammation induced by prolonged contact of ether vapor. It is not alleged that the case in question was of this character; but, finding a fatty heart, the fatal ending required no further explanation. Did this conclusion turn on the naked-eye appearances, or was it decided by a microscopic examination of the muscular elements?

The Coroner seemed to have been outraged in his innermost moral consciousness that the fatty degeneration of the heart had eluded *ante-mortem* examination. We opine that his strictures are not justified by our existing knowledge of the rational and physical signs of this morbid condition. We have the conviction that considerable fatty degeneration may exist without any definite symptoms, and all of the usual signs of this affection may coexist with a normal state of the organ. Assuming that the heart of this patient had undergone, to some extent, degenerative changes, should this condition inevitably preclude the administration of ether? An answer to this question is furnished us by the mode of dying in ether narcosis. It is now conceded on all sides that failure of the respiration is the mode, the action of the heart being rather stimulated than depressed by ether.

To connect the death of this patient with the ether inhalation after several hours had elapsed, is to do violence to every fact; to assume as a cause of the fatal ending a condition of the heart which had passed through the ordeal of a surgical operation and complete insensibility, is to tax credulity above its power of endurance; and to ignore the results of physiological investigations that have demonstrated the nature and character of the dangers in anæsthesia by ether, is to substitute for exact knowledge the vagaries of uninstructed opinions.

To permit the Coroner to give utterance to extra-judicial opinions that reflect on the judgment and attainments of physicians who have the misfortune to come within his jurisdiction, is to touch nearly the honor of the medical profession. To permit the Coroner's physician to announce hasty opinions after insufficient examination that discredit the knowledge and reflect on the integrity of the physicians concerned, is to place in his hands an opportunity for mischief that can hardly fail of being utilized. If post-mortem investigations that involve mortification or disgrace, or merely annoyance, are conducted without giving an opportunity to the physician implicated, to observe for himself, is it not certain that a grievous wrong is being perpetrated, and the good name created by a life of honest endeavor, put at the mercy of caprice, of prejudice,

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or of ignorance? We learn that in the case now under consideration, the *post-mortem* was conducted without acquainting the physicians concerned, and thus affording them the opportunity to prepare for their own defence.

It must be obvious to the least observant physician, that there is an increasing distrust of the medical profession, growing out of those personal discussions in which the integrity and acquirements of each other are called in question. The world is apt to adopt that view of a body of men to which they themselves give expression. In these times of combinations, of syndicates, of organizations, the medical profession is apparently engaged in a process of disintegration rather than solidarity.

THE ACTION OF IODOFORM ON SEPTIC MATERIAL.

THE fact that iodoform is used so generally, both in this country and abroad, certainly points toward its being a drug of great value, but in reality we have little more than clinical evidence on which to base an opinion concerning it. Quite lately, at the Sixteenth Congress of German Surgeons, this subject was thoroughly discussed by BRUNS, of Tübingen, SÄNGER, of Leipzig, and several other observers, and a large amount of evidence was brought forward to show that iodoform acts upon any septic matter with which it may come in contact with considerable power, and the results given by Sänger of some three hundred experiments made to determine its action on the bacillus of anthrax are extremely interesting.

To be brief, Sänger found that the growth of these bacilli was checked by iodoform, and their reproductive power decreased, while, at the same time, certain degenerative changes seemed to take place in their anatomical arrangement. Experiments made on the mouse by the injection of this bacillus proved that if the culture had been subjected to the action of iodoform for from one to three days death resulted in twenty-four hours, while, if older cultures were used, death was delayed. When iodoform anthrax cultures of six days were injected recovery took place. Other experiments were made by placing bacilli in a "pocket" in which iodoform had already been placed, and covering them with the same drug. Under these circumstances the bacilli, in the course of a few days, became harmless.

Professor Bruns expressed the opinion that the antitubercular action of the drug was established, and detailed fifty-four cases of tuberculous abscess from which the pus had been removed by aspiration, after which the abscess cavity was washed out by from one to three injections of an iodoform solution containing ten per cent. of glycerine and alcohol. Cures were produced in forty of the fifty-four cases, though, in many of them, the cavities were of sufficient size to hold a pint. This observer believes that the drug acts directly on the tubercular tissue, destroying it, and causing its replacement by healthy granulations, and detailed the results of several cases in which histological studies of the abscess walls showed a progressive lessening of the number of the bacilli, with a disappearance of the exudation, and a rapid increase of granulation tissue.

From the evidence before us it is evident that iodoform, as used in surgery, acts much more as a prophylactic than as a true disinfectant, preventing the multiplication of disease germs in a wound, but scarcely capable of influencing those already present before they can effect any ill results.

It is a point not to be forgotten in using any drugs of this class that all the tissues of the human body, being more highly organized than the bacilli themselves, are much more readily destroyed than the germs against which they are used, and the point of difficulty is to find a substance which will act on the bacillus without injuring the man. Iodoform seems to approach more closely this desirable condition than any other substance used in surgical dressings, but the practitioner should never lose sight of the fact that a large number of cases of grave or fatal poisoning have resulted from the spreading of even a small quantity over a raw surface. One or two deaths have occurred in which only a drachm of the powder was used, scattered over a considerable area, and in some cases slow or chronic poisoning has resulted from its use for a long period in large quantities, the lesions after death being found to be those of fatty degeneration.

ETHER IN CARDIAC DYSPNŒA.

THE death of Dr. Wilson Fox, of England, within the last few weeks, has left a gap in the ranks of the profession not easily filled. For many years he had labored earnestly, both as a teacher and writer, in the field of thoracic disease, particularly as connected with the lungs, and it is curious that even in his last hours he indirectly should have brought to our notice the use of ether for the purpose of relieving cardiac dyspnœa, and perhaps no better manner of discussing the subject can be devised than to give a short history of his physical condition as it comes to us through the *Brit. Med. Journ.* of May 7, 1887.

Eleven years ago Dr. Fox had a severe attack of pneumonia complicated by endo- and pericarditis, which left the cardiac valves in a damaged condition, and during the spring of 1886 he had a second attack of pneumonia, from which, however, he quickly recovered. The sudden illness and death of a brother of the same disease, occurring when he was already broken down by a hard winter's work, seemed to be the last thing needed to increase his loss of vitality,

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and early on the morning of the fourth day after the death of his brother he himself became a victim of the same disease, the onset of which announced itself by dyspnœa, syncope, and great prostration. Twenty-four hours later the dyspnœa and prostration were suddenly markedly increased, and there was also much pain in the side which, however, was muscular and not pleuritic. His symptoms now pointed to cardiac weakness rather than pneumonia, and although he rallied once or twice it was only to return to a worse condition than before, so that, with total possession of his mental powers, he gradually sank, although death at the last came rather suddenly.

The point in connection with this case to which we desire to call particular attention is, that on three successive days "his sense of dyspnœa was relieved, and he was free from all pain" after the subcutaneous injection of ether. From our knowledge of the physiological effects of ether, the *modus operandi* of its action in such a case is not hard to understand except in so far as concerns the relief of pain, since it is scarcely possible that a sufficient quantity of ether can be given in this manner to produce partial anæsthesia. This is not, however, the point to which we desire particularly to call attention, but to the relief of the more pressing and worrying symptom of dyspnœa.

It will be remembered that ether in small quantities acts both on the respiratory centre and heart-muscle as a stimulant, and that in pneumonia the resistance to the passage of the blood from the right side of the heart through the lungs produces distention and palsy of the right ventricle. Under these circumstances dyspnœa arising from cardiac failure soon asserts itself, but is relieved if, by the aid of cardiac stimulants, we can enable the heart to overcome the resistance and free itself of the abnormal quantity of blood. It is probable, then, by this double action on respiration and circulation that ether in such a case does good; but it is worthy of remark that, as a general rule, less fugacious cardiac stimulants are more desirable, since in the case of ether stimulation the effects pass off as rapidly as they appear. Nevertheless, in those cases in which cardiac dyspnœa suddenly becomes alarming it is well to remember that the hypodermatic injection of small quantities of ether may bridge over the danger till more constant and equally powerful remedies can be given.

WAKING NUMBNESS.

IN the current number of *The American Journal of the Medical Sciences*, DR. ANDREW H. SMITH describes a curious neurosis characterized by numbness on waking, either general or confined to the distribution of the ulnar nerves. Two of the four cases which he reports had been subjects of organic nerve lesion, but in the others there was no disturbance of motion, and the abnormal sensation seemed purely subjective. The duration was rarely more than a few minutes, though in one case it lasted sometimes for an hour or two. The condition is not serious, and is met with in hysterical or debilitated persons. Dr. Smith is apparently not aware that Dr. Weir Mitchell described the affection some years ago in his lectures on Diseases of the Nervous System, in which he states that "in the more usual cases the sleeper awakens with numbness, or rather tingling and numbness, of one arm or of a leg only, which is unfrequent, or the whole side, including the face, and even the tongue, which is now and then attacked alone. The disorder may be mere tingling, or actual loss, or rather lessening of tactile sensation; but in any case it rapidly fades away, or yields to a little friction."

In an interesting article on "Local Numbness," in the *Lancet* of Dec. 4, 1886, Dr. J. E. Squire gives several cases in which numbness was a characteristic feature on awakening.

Local treatment does not appear to be of service, but measures calculated to improve the general health usually cause a disappearance of the unpleasant symptoms.

THE arrangements for the forthcoming International Medical Congress are actively progressing. The Committee have announced that the transatlantic steamship lines have made a reduction in rates to members, and in due time, no doubt, a reduction in railroad rates will also be secured.

The following Addresses are announced to be made in the General Sessions: Prof. Semmola, of Naples, on "Bacteriology and its Clinical Therapeutics;" Dr. Neudorfer, of Vienna, "On the Military Medicine of the Present and of the Near Future;" Prof. Esmarch, of Kiel, "On Bloodless Operations in Surgery;" Dr. Lutaud, of Paris, "On the Influence of the Discoveries of American Surgeons on the Development of Gynecology in Europe," and Dr. Austin Flint, of New York, "On Fever, its Causes, Mechanism, and Rational Treatment."

The complete programme of papers to be read in the Sections will probably be published at an early day, as the last of April was fixed as the latest date at which titles must be handed-in, and from it, in connection with the list of the members who are expected to participate in the discussions, an estimate can be formed of the scientific attractions and the international character which the Congress will present.

The social features of the gathering have not been overlooked. The Government has appropriated $10,000, which, in connection with other available

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resources, will insure a liberal public hospitality, while, doubtless, there will be dispensed the same large private hospitality as has characterized the preceding Congresses.

THE thirty-eighth annual meeting of the American Medical Association will be held at Chicago, in Central Music Hall, on Tuesday, Wednesday, Thursday, and Friday of next week, under the presidency of Dr. E. H. Gregory, of St. Louis. The Presidents of Sections are as follows: *Medicine*, Dr. J. S. Lynch, of Baltimore; *Obstetrics*, Dr. F. M. Johnson, of Kansas City; *Surgery*, Dr. H. H. Mudd, of St. Louis; *State Medicine*, Dr. George H. Rohé, of Baltimore; *Ophthalmology*, Dr. X. C. Scott, of Cleveland; *Dental Surgery*, Dr. J. V. Marshall, of Chicago; *Medical Jurisprudence*, Dr. I. N. Quimby, of Jersey City.

THE Maine Medical Association will hold its 35th Annual Meeting at Portland on June 14th, 15th, and 16th, under the presidency of Dr. J. B. Walker, of Thomaston.

THE New Jersey Medical Society will hold its one hundred and twenty-first annual meeting in the Baldwin House, Beach Haven, on Tuesday and Wednesday, June 14th and 15th, commencing at 4 P.M. on Tuesday. Dr. Charles J. Kip, of Newark, is president for the year.

IT will be remembered that Dr. Darby, of Morrow, Ohio, was sent to jail for contempt of court in refusing to give expert testimony without compensation. We learn from the *Cleveland Medical Gazette* that the next higher court has sustained the decision, and that a fund is now being raised to carry the case to the Supreme Court.

BELLEVUE HOSPITAL, New York, is about to establish a school for the training of male nurses. The enterprise has received a liberal endowment.

AT the last meeting of the Board of Directors of the New York Post-Graduate Medical School and Hospital, held on May 31st, Dr. Charles Carroll Lee was elected Professor of the Diseases of Women. Associate Professor J. R. Nilsen was also elected professor in the same department to fill the vacancy caused by the resignation of Dr. A. J. C. Skene.

Several new instructors were appointed, among them, Dr. Joseph O'Dwyer, inventor of intubation of the larynx.

The last year's sessions of the school have been attended by more than two hundred matriculates.

SOCIETY PROCEEDINGS.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Ninth Annual Congress,
held in New York, May 26, 27, and 28, 1887.

(Specially reported for THE MEDICAL NEWS.)

THE PRESIDENT, DR. E. FLETCHER INGALLS, of Chicago, occupied the Chair. He thanked the Association for the honor conferred upon him by electing him to the office of President, and then offered some remarks on

INTUBATION OF THE LARYNX.

In 1880 O'Dwyer, he said, introduced intubation, and gave to the profession one of the most useful operations of modern times. In the after-treatment, while the tube is in position, no liquids should be allowed. Sometimes small quantities of liquid can be taken, but the danger of exciting bronchitis or pneumonia is so great that fluid should be entirely prohibited. The largest tube that can be introduced is the one most likely to be retained. The danger of the tube being forced into the trachea was referred to. In four or six days, in favorable cases, the swelling and false membrane will have so much diminished that the tube will be coughed up finally, and need not be reintroduced.

He had performed intubation in twelve cases of diphtheritic laryngitis. In three recovery followed. By a coincidence the cases of recovery were the only ones in which he had charge of the after-treatment. One case lived eight days, and then died suddenly an hour after the tube had been removed. Another lived eight days, and then died of pneumonia. Details of the cases treated were given. As a result of his experience he concluded that the treatment after intubation should be: 1. Prohibition of fluids, except by enemata. 2. Some preparation of mercury should be given in large and frequent doses. In case of development of bronchitis, or pneumonia, respiratory and cardiac stimulants should be given frequently, but cautiously.

By correspondence and study of the literature he has collected 514 cases, with 134 recoveries. The percentage of recoveries will be greater when more care is exercised in the use of fluids. When medicines fail, no time should be lost in providing for the free entrance of air, either by intubation or tracheotomy. Intubation can be done more quickly, more safely, with less shock to the patient, and less objection on the part of the parents. The operator should be prepared to open the trachea, if loosened membrane should be forced down into the trachea. When the tube fails to relieve the dyspnœa tracheotomy should be performed, unless there is reason to believe that the latter operation will fail. When membrane is loose in the trachea, no time should be lost in the use of forceps, which rarely succeed, but tracheotomy should be resorted to. The results obtained by intubation are about as good as tracheotomy at all ages, but apparently better in young children.

DR. CHARLES E. SAJOUS then presented

A STUDY OF SOME OF THE OBJECTIONABLE FEATURES OF INTUBATION.

At present, he said, statistics favor the operation of tracheotomy, but he believed that intubation would prove the better operation when the mechanical defects

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are overcome. The principal objections, according to the degree of danger, are: 1. The tendency to the obstruction of the tube by fragments of membrane. 2. Crowding down of loose membrane during introduction of the tube. 3. Passage of food into the trachea. 4. Momentary arrest of respiration during introduction of the tube. 5. Liability of the tube to be coughed out. And 6. Slipping of the tube into the trachea. The tendency to obstruction was attributed to the limited diameter of the tube; the crowding down of membrane to the length of the tube; the passage of fluid, to the weight of the tube; the liability to be coughed out, to the limited diameter of the tube, and the slipping of the tube to the weight of the instrument and the formation of the head.

He exhibited instruments on the principle of the bivalve speculum, which were intended to embody the suggestions made above. This tube obstructs the larynx very little, leaving the breathing space almost as great as normal.

He also exhibited an instrument intended to remove loose membrane from the larynx. The instrument consisted of forceps which could be protruded into the larynx, by an arrangement in the handle, the required distance and the membrane grasped.

DR. F. H. HOOPER, of Boston, stated that he had no personal experience with the operation, but had watched certain cases in the Boston City Hospital. Since last October ten cases of intubation have been operated on with two recoveries. In one case the attempt to introduce the tube caused spasm, and tracheotomy was performed. In every case there was immediate relief of dyspnœa. In three cases the tube was coughed up and swallowed.

DR. D. BRYSON DELAVAN, of New York, said that an interesting question is with reference to feeding. It has been suggested that feeding with a tube introduced into the œsophagus would overcome the difficulty. This was worthy of consideration. This plan can also be used in cases of tracheotomy.

DR. MORRIS J. ASCH, of New York, thought there were a few objections which should be brought to the notice of the profession. One of these is that the membrane may be crowded down, which is very difficult to remove, even by tracheotomy. Another objection is the difficulty experienced by the ordinary practitioner in the removal of the tube.

DR. B. F. WESTBROOK, of Brooklyn, did not think that the weight of the tube is the cause of the trouble in deglutition, for the muscles which elevate the larynx are quite strong. It seems more likely that the difficulty is due to the rigid tube holding the larynx open. In normal deglutition the entrance of the larynx is closed.

DR. S. H. CHAPMAN, of New Haven, remarked that one of the most distressing symptoms after the introduction of the tube seems to be thirst. It would be interesting to study the cause of this. Could it not be relieved by the use of enemata and by baths? It may be occasioned by the use of the mercury, which might be introduced in some other way than by the mouth. The use of pilocarpin, which even in small doses causes salivation, might be of service.

DR. INGALLS said that it is so rare that the tube becomes clogged that it is not necessary to have a skilled attendant. When the tube becomes clogged it is usually coughed up, and, as a rule, it is not necessary to replace it for two or three hours. The attempt to feed these patients through a tube introduced into the œsophagus has been tried in Chicago, but he had not heard any stress laid on this measure.

DR. J. SOLIS COHEN, of Philadelphia, then gave a

DESCRIPTION OF A MODIFIED LARYNGECTOMY.

The operation is applicable to those cases in which the disease is not too extensive, and has the advantage over complete laryngectomy of leaving the greater portion of the thyroid cartilage undisturbed while the respiratory portion of the larynx is removed. On the cadaver the operation can be performed in two minutes. In disease limited to the interior of the respiratory tube, especially carcinomatous disease, it fulfils every indication that prompted complete laryngectomy. The advantages claimed for the operation were: 1. Rapidity, ease, and comparative safety for the patient. 2. The small size of the wound. 3. The preservation of the attachment of various important muscles and ligaments. 4. The retention of important structures in their normal relation. 5. A firm natural support is left for the application of any artificial apparatus.

The operation should be preferred to complete laryngectomy, when not precluded by the extent of the disease.

PRESENTATION OF INSTRUMENTS.

DR. T. A. DEBLOIS, of Boston, exhibited a portable apparatus for compressing air.

DR. E. C. MORGAN, of Washington, presented a universal powder blower, which could be used in diseases of the nose, throat, vagina, or rectum.

DR. ALLEN exhibited an improved form of snare which could be used with one hand.

The following were appointed

THE NOMINATING COMMITTEE:

Drs. Beverley Robinson, of New York; W. C. Glasgow, of St. Louis; and S. H. Chapman, of New Haven.

AFTERNOON SESSION.

DR. JOHN N. MACKENZIE, of Baltimore, read a paper on

THE PATHOLOGICAL NASAL REFLEX: AN HISTORICAL STUDY.

The fact is established beyond doubt that a causal relation exists between diseases of the nasal mucous membrane and other portions of the respiratory tract and many conditions of distant parts of the body. Hay fever can be traced to the time of Galen. The fact that tickling of the nose would arrest hiccough is referred to by Plato. The irritating effects of the odor of flowers were recognized in very early times. Reference was made to the observations of various individuals in regard to reflex conditions due to nasal disease.

DR. JOHN O. ROE, of Rochester, then presented a paper on

HAY FEVER; ANALYSIS OF CASES, WITH RESULTS OF TREATMENT.

Up to the last hay fever season, the author had treated 42 cases. A study of these cases tends to confirm the opinions expressed in February, 1883. Some of these views have been modified. Of the 42 cases 26 were males and 16 females. The attacks came on between May 1st and August 1st. In all, the active symptoms

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subsided soon after the appearance of frost. In some cases the hay fever dated from a severe attack of cold. In every instance there was disease of the nasal passages. The location of the sensitive areas is not constant but they are usually most marked over the areas of greatest hypertrophy. The areas have not been confined to the posterior portion of the turbinated bones nor especially to the anterior portion of the turbinated bones. In the majority of cases the septum was as sensitive as the turbinated bones. Thirty-one patients suffered with asthma. But twelve patients had a distinctly nervous temperament, while nine were distinctly phlegmatic.

The plan of treatment adopted is to restore the nasal passage to as nearly as possible a normal condition and destroy the sensitive areas. These areas are to be destroyed by cauterization. Deep cauterization has been more effective, while superficial cauterization had no marked effect. The condition of the larynx, pharynx, and bronchi must not be overlooked; not infrequently enlarged tonsils will keep up irritation in the turbinated bones. A neglect to cure a bronchitis may account for the return of the disease. 35 of these cases have practically been cured; 17 have remained exempt for periods varying from one to nine years; 4 were not relieved, owing to imperfect treatment; and 4 have been lost sight of. The following conclusions were presented:

1. All cases of hay fever have the initiatory lesion in a diseased condition of the tissue of the nasal fossa.

2. All diseases of these tissues induce in the ganglionic centres connected with them an abnormal activity which is reflected to other organs.

3. The sensitive areas in the nose are not found in any particular parts of the cavity. Nor are there any zones which, when irritated, produce always the same manifestations.

4. The direction in which the irritation is reflected is always in the line of least resistance. Irritation in the same region may be reflected in one direction at one time and in another direction at another time.

5. The disease in the nose may produce disease in other portions of the respiratory tract which may become independent centres of irritation.

6. The affection recognized as hay fever is due to local irritations brought in contact with the sensitive areas in the nose.

7. The affection is not *per se* neurotic; nor is the so-called neurotic condition of the person necessary to render a person susceptible to local irritation applied to the air-passages. It is not necessarily associated with the nervous temperament.

8. The neurotic condition, which is often regarded as the cause of the hay fever, is often the result of the local irritation.

9. By careful and thorough treatment of the disease of the nasal tissue, combined with that of other portions of the respiratory passages below, which have become secondary sources of irritation, we need not fail to cure hay fever.

DR. SAJOUS had reported at the last meeting some cases in which the use of the cautery had been of only temporary benefit. He now believed that the failure was due to the fact that the cauterization was only superficial. Since he had employed deep cauterization, he had cured the disease.

DR. MACKENZIE regarded hay fever as a neurosis. He did not believe that it is a disease of the nose producing reflex symptoms. Where in hay fever disease of the nose is found, the question arises whether this is primary or secondary, or whether it is only an accidental condition. There is, he thought, always some more central cause than the affections of the nose. Where the disease is recent, it may possibly be arrested by the rest given by local treatment; but where the affection is of long standing, he did not believe that simple local treatment of the nose will overcome the difficulty. Last summer, in treating hay fever, he made no application to the nose, and yet his results were better than ever before. He gave zinc, nux vomica, quinine, and arsenic in large doses.

DR. F. I. KNIGHT, of Boston, asked if any of the members had any experience with diversion of nervous influences in any of these cases? In one case coming under his notice, the attack was arrested by the patient breaking his leg. Another patient had the attack arrested after consulting a disciple of mind cure.

DR. W. C. GLASGOW, of St. Louis, held that the evidence shows that hay fever is not a local affection, but that it is a general nervous disturbance. It is difficult to judge of the influence of treatment, for in the same individual the severity of the attack varies from year to year. He believed that constitutional treatment is an important element in the case. Unless the disposition toward the disease can be eradicated, he did not believe that a perfect cure can be attained by the destruction of the mucous membrane of the nose.

DR. F. H. HOOPER, of Boston, had regarded hay fever as a neurosis, and had treated it in the manner spoken of by Dr. Mackenzie. This accomplishes great good, especially in young children. He had at present under treatment a case in which there is hay fever with asthma. Until this gentleman came to the speaker a few weeks ago, his nose had not been examined. In the right nostril there is a sharp ridge running along the septum, and coming in contact with the inferior turbinated bone. On the left side was a similar ridge. With this exception there was no special disease of the nose.

DR. SOLIS COHEN thought that the views of Dr. Mackenzie are very nearly correct. It had been his experience that poor people rarely become the victims of hay fever. He thought that, in addition to the neurotic element, coddling and high living had something to do with the induction of the affection. Many cases occur in those who are overworked, and have resort to stimulants. These patients are often benefited by rest in the mountains or at the seashore. He had obtained benefit by tonic treatment, modifying the diet and restricting the use of meat. The more we look upon this as a constitutional affection, and the less as a local condition, the sooner will we get at the truth. A large number of these sufferers have obstruction in the nasal cavities, but many have no such obstruction.

DR. ROE considered hay fever as the reflection of some irritation from the nasal chambers, which irritation is produced by some foreign substance coming in contact with the mucous membrane of the nose. Irritation reflected from other situations to the nasal chambers is not hay fever. He had never seen any evidence to show that this was a neurosis.

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DR. DELAVAN read a paper on

THE TREATMENT OF ATROPHIC RHINITIS BY APPLICATIONS OF THE GALVANIC CURRENT.

Some years ago Dr. E. L. Shurly, of Detroit, recommended the use of the galvanic current in the treatment of dry catarrh of the pharynx and related cases in which benefit had followed its use. He also advocated the same treatment in atrophic rhinitis. There is no disease which is more discouraging to the physician and patient than atrophic rhinitis. Dr. Delavan has tried this method of treatment in certain cases. The positive pole of a constant current battery was applied to the nape of the neck, while the negative pole was applied directly to the mucous membrane by an electrode consisting of a copper wire around which absorbent cotton is wrapped. The strength of current employed varied from four to seven milliampères. In more recent cases of the affection the effect is marked, but even in the older cases the method is not without benefit. The author has found this measure useful in these cases and reported illustrations. The objection to the method is the amount of time which it requires.

DR. T. A. DE BLOIS has applied this method of treatment to two cases, one of atrophic and the other of hypertrophic rhinitis. In the first case there was almost complete loss of smell and taste. The applications were made three times a week for six months. Both cases were improved.

DR. KNIGHT asked what experience the members had had with the use of plugging the cavity of the nose. He had used this measure and produced relief of the most distressing symptoms. One side of the nose is thoroughly stopped with a piece of absorbent cotton, which is allowed to remain three hours during the morning. It is then removed and the other side is stopped in the same way for three hours in the afternoon. He never had the least disagreeable effects from the use of the cotton in this way. The bad odor is greatly lessened.

DR. ROE had used the plugs of cotton, but with no other effect than to set up irritation. He had used with marked benefit the application of a weak solution of nitrate of silver five or ten grains to the ounce, the parts having previously been cleaned. This applied every other day almost entirely relieved the symptoms.

DR. SAJOUS remarked that the good effect obtained by Dr. Delavan was probably due to the irritating effect of the negative pole. He had used in two cases with absolute relief of the symptoms the application of chromic acid in a solution made by simply allowing the acid to absorb moisture from the air.

DR. S. H. CHAPMAN, of New Haven, then made some remarks on

MYALGIA OF THE PHARYNX AND LARYNX,

and called attention to certain peculiar conditions of the muscles of the upper air-passages, which occur oftentimes in malarial disorders and which on account of their severity are brought to the notice of the specialist. The muscles most likely to be affected are the pectoral, the muscles of deglutition, and those of the voice.

DR. F. I. KNIGHT, of Boston, opened the discussion on

SENSORY AFFECTIONS OF THE THROAT.

His principal experience has been with hyperæsthesia and paræsthesia. In hyperæsthesia the general condition of the patient is, as a rule, not sufficiently considered. The worst cases are alcoholic subjects and those with digestive disorders. These will often yield to withdrawal of the alcohol and regulation of the diet. Astringents are frequently of service. In the cases of paræsthesia which he had seen, there had been a feeling of fulness, pressure, burning, globus hystericus or the sensation of a foreign body in the throat. In these cases there is impairment of the general nervous system. The exciting cause may be some disease of the throat. Fatigue usually exaggerates these sensations. He had never met with paræsthesia of the larynx as the earliest symptom of phthisis, as had been claimed by some observers. The prognosis in most cases of paræsthesia is good if a careful treatment be carried out. The treatment of the neurosis of sensation must be aimed to cure the constitutional vice.

DR. W. C. JARVIS, of New York, recently saw a man complaining of pain on either side of the tongue which had existed for the past two years. He was suffering from the effects of syphilis and with the neuralgia of the tongue there were frontal neuralgia and pains in other parts of the body. The speaker has another patient who consults him every five or six months on account of a severe pain in the right anterior pillar of the fauces. He believes that it will terminate in cancer. It disappears for a week at a time and then returns. He believed that in this case the trouble is psychical and that there is no pathological lesion to account for it.

DR. SAJOUS has seen two or three such cases. In one there was follicular pharyngitis, and although the pathological condition was cured the pain remained. The pain seemed worse in damp weather and the patient had the habit of bathing every morning in cold water. The history of the case seemed to indicate a rheumatic trouble and such may have been its nature.

DR. GLASGOW said that many of these cases, he thought, were due to malaria and some to the gouty diathesis. Sometimes the trouble is kept up by a single hyperæsthetic follicle. A reduction of the inflammation will be followed by a subsidence of the neuralgia. Sometimes the source of irritation is found with difficulty. In the rheumatic cases there is usually exacerbation at night. These affections in some cases appear to have a tendency to the induction of melancholia.

FRIDAY, MAY 27TH.—MORNING SESSION.

DR. FRANK DONALDSON, JR., of Baltimore, reported some

FURTHER RESEARCHES UPON THE FUNCTION OF THE RECURRENT LARYNGEAL NERVE.

At a previous meeting he had read a paper criticising certain conclusions advanced by Dr. F. H. Hooper, of Boston. The conclusions which Dr. Donaldson reached were, that the constrictors do not cease to act under deep narcosis or suspension of consciousness from any cause; that we do not always obtain abduction on irritation when consciousness is suspended; that the abduction was not reflex and was not dependent on unconsciousness; that it is with weak stimuli that abduction takes place, and the movement passes into adduction as the stimulus is increased. These results invariably followed whether the animal was slightly or

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deeply narcotized, or where the medulla was destroyed, or when local death had taken place; that after strong or continued stimuli the abductor muscles became worn out and did not respond to stimuli.

These conclusions had been strongly criticised, and the present series of experiments were performed to test the correctness of the above views. He had shown that abduction of the vocal bands can be obtained without ether, and that it is a physiological fact that opening or closing of the larynx depends upon the strength of the stimulus. With weak stimuli abduction was produced, while with strong stimuli adduction was caused.

DR. F. H. HOOPER, of Boston, then read a paper on

THE ANATOMY AND PHYSIOLOGY OF THE RECURRENT LARYNGEAL NERVE.

He said that the anatomy of this nerve is now complete and exact, but up to a very recent date much confusion existed on this subject. To find out why these nerves are recurrent, it is necessary to begin with the embryo. The recurrence is due to certain changes in the branchial arches and the descent of the heart into the thorax. At one time in the period of development, these laryngeal nerves are straight, but as the heart descends they are brought down. The proof of this is found in the abnormal condition of the nerve in cases of irregularity of the great vessels which branch from the aorta. These nerves (at least in dogs and cats) contain no sensory fibres.

The larynx possesses three functions controlled by three distinct sets of muscles, all innervated by the recurrent nerves. These functions are: 1. Respiration; 2. Sphincter action, which closes the larynx and prevents the entrance of foreign bodies, and plays an important part in expulsive acts; 3. Phonatory action.

Stimuli applied to recurrent nerves produce adduction in certain animals (dogs), and abduction in other animals (cats). Only a few experiments have been made in man, but, as far as they go, they seem to show that stimulation closes the glottis. Under ether or profound morphia narcosis, stimulation of the recurrent nerves produces opening of the glottis in dogs. Three hundred and twelve experiments were reported; some of the animals were under the influence of chloral, chloroform, morphia, or ether. Under ether, dilatation was produced with weak currents, while contraction could not be produced with even the strongest current. As the dog begins to come out of the ether, dilatation cannot be induced with any current, while contraction is brought about by currents decreasing in intensity as the effect of ether passed off. A similar effect was observed in one case after the use of a large dose of morphia. After small doses of ether stimulation produces two effects, first vibration, second closure. Under large doses of ether four effects were observed, according to the intensity of the irritation—vibration, complete dilatation, mixed movement, and closure. After small doses of morphia, chloral, and chloroform, stimulation produces the same effects as after small doses of ether.

DR. KNIGHT said that such different results are obtained in different animals, resulting from differences in size, weight, and other conditions that they must be applied with a great deal of reserve to the human being. He saw some of the experiments of Dr. Hooper. In one case he saw a failure to get the ether effect, which was attributed to the size of the dog.

DR. S. W. LANGMAID, of Boston, said that in one of Dr. Hooper's experiments recently made, the skull was trephined and insensibility produced by pressing a plug against the cortex. In this case dilatation was very marked under stimulation of the recurrent nerve. That was the only case in which he had seen dilatation similar to that which he thought Dr. Donaldson described. In some cases he found it difficult to say exactly what he did see.

DR. M. ALLEN STARR, of New York, recently had an opportunity to see in Paris some experiments by Charcot on hypnotized individuals. It is well known that in this state slight percussion of a nerve will produce contraction in the muscles supplied by that nerve. In one of these cases, slight stroking in the course of the recurrent laryngeal nerve over the trachea below the larynx, produced such adduction of the vocal cords, and so interfered with breathing, that it became a question whether it would not be necessary to resort to tracheotomy.

DR. HOOPER said that he had been trying to get the effect with feeble stimuli which Dr. Donaldson described, but had been unable to do so. The only point on which they disagree was with reference to the effect of weak stimuli in unnarcotized animals. He had done a number of experiments following the method of Dr. Donaldson, but had not gotten his results.

AFTERNOON SESSION.

DR. WILLIAM C. GLASGOW read a paper on

CERTAIN MEASURES FOR THE RELIEF OF CONGESTIVE HEADACHES.

The most severe symptoms in this condition are the pain and sense of constriction of the forehead. If the pain is analyzed, it will be found that it is of two kinds. One gives a dull sense of fulness and occasional throbbing over the temple. The other is of the sharp, lancinating character so generally known as neuralgia. At times both of these varieties are present in the same case. In the one there is fulness of the vessels, and in the other disordered nerve action. Both varieties are often due to the same pathological condition of the nasal chambers. During congestive headache, if we examine the nose we find that the cavernous bodies are full and tense. The degree of tenseness corresponds, to a certain extent, to the degree of headache. The method of treatment which he had adopted during the past four years had been the local abstraction of blood. A knife is not required, a simple prick is sufficient. In many cases the relief is immediate. The operation may have to be repeated in a month or two. He had seen few cases in which permanent relief had not followed a repetition of the operation from two to six times. The amount of blood drawn rarely exceeds an ounce. A number of illustrative cases were cited.

DR. MACKENZIE stated that the paper goes to prove certain views which he had advanced with reference to turgescence of the turbinated bones during the menstrual periods. He thought that a number of headaches occurring during menstruation are due to congestion of

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the turbinated bones. Some years ago he advised that in acute coryza an incision be made in the turbinated tissues with a sharp-pointed bistoury.

DR. C. C. RICE, of New York, said that his experience was somewhat different from that of the author. So far as chronic hypertrophic catarrh is concerned, he had come to look in the cases of headache for hypertrophy over the middle turbinated bone, pressing against the septum. He had seen many such cases; there had not been much congestion, but simply contact. In these cases he had used the galvanic cautery, and had not tried to draw blood. He thought that it is sufficient to cause counter-irritation without bleeding.

DR. HARRISON ALLEN, of Philadelphia, was more in accord with the last speaker than with the author. The trouble may come from the turbinated bones, but he had attributed it to pressure effects. We know that when the septum is deviated it is usually with the convexity to the left, but if a careful examination is made, it will be usually found that there is in the upper part a deviation in the opposite direction. This brings it in contact with the middle turbinated bone. The proper treatment is to separate the parts. He does not hesitate to etherize the patient, and introduce the finger and push the septum into place. In one case, a lady came to Philadelphia with a complication of disorders. There was astigmatism, and also a lacerated cervix. She was under the care of an oculist and of a gynecologist. Each of these gentlemen attributed the trouble to the condition belonging to his special department. She had reflex headaches which were so severe as to lead to a fear of mental aberration. On examining the nose he found the condition referred to above, and insisted that the headache was due to the trouble in the nose. He etherized the patient and separated the parts with the finger. The headaches entirely disappeared.

DR. SAJOUS said that while the lesions described by Dr. Allen may be found in a number of cases, he was more inclined to consider headaches originating in the nose as due to hyperæsthesia. He thought that this is proven by the effect of light cauterization, and the treatment of Dr. Glasgow also goes to show that by depleting the cavity he reduces the stretching and pressure on the nerves, and therefore reduces the hyperæsthesia.

DR. F. H. BOSWORTH, of New York, remarked that it is a fact that in many cases where we find contact between the middle turbinated bone and the septum there are no symptoms that can be referred to this condition. Judging from analogy, we have in no other portion of the body neuralgia caused by the contact of mucous surfaces. In the vagina and in the urethra we have mucous surfaces in contact. We may, however, safely say that it is a proper course to pursue to put the nasal cavity into a condition as near normal as possible.

DR. GLASGOW remarked that his paper said nothing at all about hypertrophy. No one recommends bleeding for hypertrophies, for these do not bleed. The fulness of the cavernous sinuses is simply the sign of the fulness of the frontal sinuses. He did not regard it as the cause of the trouble. He takes blood from this part simply because this is the most convenient place to do it.

(*To be continued.*)

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, Washington, D. C., May 11, 12, and 13, 1887.

(Specially reported for THE MEDICAL NEWS.)

(Continued from page 611.)

FRIDAY, MAY 12TH—THIRD DAY.

MORNING SESSION.

The following surgeons were elected to membership: Charles B. Porter, M.D., of Boston; William M. Mastin, M.D., of Mobile; and Morris H. Richardson, M.D., of Boston.

The Committee on Nominations reported the following list of

OFFICERS FOR THE ENSUING YEAR.

President.—D. Hayes Agnew, M.D., of Philadelphia.
Vice-Presidents.—N. Senn, M.D., of Milwaukee,
F. S. Dennis, M.D., of New York.
Secretary.—J. R. Weist, M.D., of Richmond, Indiana.
Recorder.—J. Ewing Mears, M.D., of Philadelphia.
Treasurer.—Phineas S. Conner, M.D., of Cincinnati.
Member of Council.—John S. Billings, M.D., of Washington.

DR. L. MCLANE TIFFANY, of Baltimore, read a paper on

SURGICAL DISEASES OF THE WHITE AND COLORED RACES COMPARED.

He stated that the present paper was intended to be only preliminary in character. The statistics presented were prepared from the records of 4930 surgical cases, most of them derived from out-door patients, but some of them were also traced into hospital. Of the 4930, 64 per cent. were white, and 36 per cent. negro. Included among the negroes were also mulattoes. He had observed that, while there is a considerable difference between the whites and the black negroes, in their behavior in disease, this difference was subject to gradations corresponding to the gradations of color.

Most of his observations were presented in tabular form.

The two races were subject to the following diseases in the percentages annexed.

	White.	Negro.
Abscess	57 per cent.	43 per cent.
Alveolar	45 "	55 "
Axillæ and neck	44 "	56 "
Hand, Fingers, Paronychia	75 "	25 "
Enlarged glands: Neck, Axilla, Groin	41 "	59 "

Pus formations are exceedingly likely to occur in the negro. In syphilis, early adenopathy, sometimes huge masses form in the groin, and these often suppurate. Chronic syphilitic suppurations are often encountered, but less frequently than scrofulous ones.

The following table illustrates the frequency of the diseases named:

	White	Negro.
Ganglion	83 per cent.	17 per cent.
Bursal enlargements	77 "	23 "
Hydrocele	94 "	06 "

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	White.	Negro.
Frost-bite	44 per cent.	56 per cent.
Fistula in ano	71 "	29 "
Hemorrhoids		
External	64 "	36 "
Internal	82 "	18 "
Spinal caries	47 "	53 "

Spinal caries is most frequently located in the dorsal region of the negro. Cured Pott's disease in the middle aged negro is very rare.

Dislocations are more frequent in the white, as is illustrated by those of the humerus, 82 per cent. white, 18 per cent. negro.

Lateral curvature of the spine is more frequent in the white.

Keloid is characteristically more frequent in the negro than in the white, and presents certain differences of appearance. In the white it is frequently seen in middle life, and frequently commences at puberty. In the negro it typically belongs to adolescence. It is at first smooth, becomes seamed, is not painful. It commences in the skin, may be spontaneous, but is usually from a scar, following slight injuries, as ear-puncture. It is liable to retrograde metamorphosis, and exhibits slower growth with advancing years. In this regard he thought the tendency to keloid formations disappears in later life, and that its removal is then permissible.

Lipoma is most frequent in the negro; sebaceous cyst more frequent in the white (88 per cent.); nævus also more frequent in the white.

Carcinoma has been more frequently encountered in the white. The essayist had never seen an epithelioma of the lip or any part of the face in a negro. Osteosarcoma is, however, frequent in the latter. The pure ovarian cyst is more frequent in the white, but fibromata or adeno-fibroma is much more frequent in the negro.

Gonorrhœa, acute, 50 per cent. white; chronic, 62 per cent. white. It seems not to give the negro much trouble. Epididymitis was encountered in the white in 59 per cent. Gonorrhœal rheumatism is rare in the negro. Chronic urethral discharges were frequently encountered in the negro, which had not been paid attention to and cared for. Inflammatory gonorrhœa was rare in the negro. Carter and McIntosh (*New York Medical Journal*, No. 13, 1886) think stricture rare in the negro as compared with the white, giving the percentage as 1 to 8 in the white, and 1 to 23 in the negro.

Bubo, chancroidal, 49 per cent. white, 51 per cent. negro; gonorrhœal, 37 per cent. white, 73 per cent. negro. Inflammatory phimosis was in the proportion of 27 per cent. white, 73 per cent. negro, usually chancroidal, frequently of the preputial orifice. Rachitis, 37 per cent. white, 63 per cent. negro.

In hospital he observed that the negro bore operations well—better, as a rule, than the white—but their reaction after accidents was not so good as that of the whites.

In conclusion, he offered the following suggestions:

1. Surgical affections pursue different courses in the white and colored races under identical hygienic surroundings.

2. Surgical operations and injuries are better borne by negroes than by whites.

3. Surgical diseases involving the lymphatic system, especially tubercular, are more fatal in negroes than in whites.

4. Congenital deformities are more rare in negroes than in whites.

5. Surgical differences observed between negroes and whites are due to racial peculiarities.

DR. CHRISTOPHER JOHNSTON agreed with the conclusions in general, but added that there are individual peculiarities that are as great as any others. He also had observed that the negro bore surgical operations better, and required less hospital treatment, than the whites. He had never observed carbuncle in the negro. He had, however, observed epithelioma in a few cases; the first penis he ever amputated being that of a dark negro for this disease. Fibromata are more frequent than in the white race. Keloid, also, is characteristically prominent in the negro. The skin and lymphatic tissues are more liable to disease than in the white race.

DR. T. G. RICHARDSON briefly sketched the records of a few diseases in the New Orleans Hospital. Of 28,090 cases, more than 8000 were colored. The diseases appeared the following number of times in each race:

	White.	Negro.
Abscess	187	96
Erysipelas	177	49
Cancer	140	69
Epithelioma	83	30[1]
Tetanus	27	15
Epilepsy	135	46
Aneurism	112	29
Internal hemorrhoids	66	8
Fistula in ano	75	12
Stricture of the urethra	123	85
Diseases of the bladder (general)	86	55
Coxalgia	38	10
Cutaneous diseases in general	181	41

He omitted syphilis, for the reason that he could present nothing of value; since syphilitic negroes were not provided with a separate ward, and were treated for the most part at home. He could corroborate the statements of Drs. Tiffany and Johnston that it is rare to find congenital deformities in the negro. He concluded by calling attention to the fact that his statistics gave only the number of cases treated without taking into consideration the relative proportion of each race.

DR. E. H. GREGORY considered it a striking contrast that pus formation is so frequently associated with syphilis in the negro. His experience might not correspond with that of others, but he has very seldom found pus formed in connection with the local manifestations of syphilis, and he has never regarded a suppurating local lesion as syphilitic in character. He has always been accustomed to regard such a lesion as local, and not as an evidence of constitutional infection. He agreed with Dr. Tiffany, that the most extraordinary examples of keloid that had come under his observation have been in negroes. He had never seen multiple keloid in the white, whereas it is common to find several of these tumors in the negro. Nor had he seen a keloid as large in the white as in the negro. The point that the disease is less likely to form after middle life was new.

The inference to be drawn from Dr. Tiffany's paper is that the negro is below the white man, that he is not

[1] Very few of face.

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a standard organism. If it be a fact that the negro is more apt to produce pus, it follows that his resistance to the incursions of disease is less than that of the white man. He assumed that all strumous disease is due to the presence of a microörganism, usually being associated with tubercle. Now it is the weakest of all organisms that will entertain the bacillus tuberculosis, the weakest of all microörganisms. It always seemed to him that the reparative process is in proportion to the energy of the body, and whenever we lower the scale of the organism, our reparative processes are relatively feebler; but if the negro have stronger power of resistance, he did not see how he can be more liable to these diseases. It may be harder to persuade the negro that he is sick. The indifference of the negro may play some part here. The negro cannot be supposed to form any adequate idea of the magnitude of a surgical operation, as it would appear to a white man. In this way we may account to some extent for the fact that he stands surgical operations better than the latter.

He had never seen a cancer on the lower lip of the negro, and thought it singular that stricture of the urethra is uncommon in the negro; whereas he had frequently thought certain strictures partook of the nature of a keloid formation, which is of acknowledged frequency. He had never seen a ganglion in the negro, although they are common in the white man.

From an examination of the records of the hospital in St. Louis, he had arrived at the conclusion that the negro bears surgical operations about as well as the white man, but he could not say that he had any advantage in that regard. Negroes are tubercular, and mulattoes are even more exposed to the disease than the black negro, so that they ought to make the worst subjects of surgical operations.

DR. W. T. BRIGGS had prepared no statistics on the subject, but his experience confirmed in a remarkable degree the statistics of Dr. Tiffany. The negroes in Memphis, he added, live mostly in little low cabins; they live on the cheaper articles of diet, eat enormously, and consequently, it is not remarkable that they are of a lower degree of vitality than the whites, and that they are subject to scrofula. It is seldom that a negro is not the subject of a scrofulous diathesis. They are, therefore, more subject to suppurations; almost any occasion will give rise to a suppuration. Nearly all operations will have a suppurative action; and sometimes they are very prostrating. Nnegros bear a surgical operation probably better than whites, the mere operation itself, because they can have no appreciation of the magnitude of an operation, or the dangers to them; nor do they care much as to the result. They have more religion than white men and are not so much afraid to die. When in the hospital they are better off than at home, and do not care to get out, and for this reason their convalescence may be longer. Their temperature seldom rises so high as that of the white man, but that they recover as rapidly as the latter, he did not believe. In regard to malformations, while he did not think that they are so frequent in the negro, yet he had met with all kinds of malformations; he had seen half a dozen club-feet in the negro, and he has operated upon the negro for harelip. Spina bifida he had seen on several occasions; hydroceles do occur; the first case he operated upon was in a negro, and was of enormous size, reaching almost to the knee; and he sees a case, on an average, once a year. Keloid is common, and if removed returns twice as large. Cancerous affections are not as common as in the whites. Lupus of the face is frequent, and is frequently seen upon the penis also. Uterine fibroids are very common in the negro, and the greatest number of tumors in the negro race belong to that class—fibroids or fibro-cystic tumors. He had twice a typical ovarian tumor in a negro.

DR. D. W. YANDELL agreed in almost every particular with the remarks of the previous speaker, but he had never seen keloid in the white man. Epilepsy is exceedingly rare among negroes. Tetanus is exceedingly common. He had never seen a case of internal hemorrhoids, and only two cases of fistula in ano. Livingstone, in his travels in Africa, as the speaker had been informed by President McGuire, reports no hemorrhoids and no dyspepsia among the Africans. He thought the latter statement correct, because they can eat anything and everything, and are always ready to eat. Stricture of the urethra, in his experience, was exceedingly common.

DR. KINLOCH desired to call attention to two points: first, the liability of the negro to suppuration, and, second, his power to undergo operations and recover from them. He thought it a mistake to class all negroes together in regard to the liability to suppuration. It is difficult to separate the negro from the hybrid mulatto. He differed from some of the speakers with regard to the liability of the pure negro to suppuration, for he thought this liability much less than in the white man. He did not think that the pure negro is as strumous as the mulatto, nor that the former is affected with the extremes of syphilitic disease; the poison seems to die out more readily in them. The mulatto, on the other hand, is almost always strumous; we constantly see them in our hospitals with suppuration in the glands of the neck and groin. Syphilis rarely ends with them, but passes on and becomes mixed up with struma, and it is difficult to say whether you are treating syphilis or struma. The negro, he thought, recovers well. This is in part probably owing to the character of his nervous system. The negro is more apathetic, as Dr. Briggs has said, and has not to contend with the peculiarly depressing influences on the nervous system.

DR. A. VANDERVEER stated that his experience in connection with the Albany penitentiary, where a large number of negroes were received from the South as government prisoners, was that the vast majority of these who died, succumbed to some form of tuberculosis. Of those who come and are examined at the time, many are found to have soft chancres and the suppurating bubo which accompanies the chancre is slow to heal; but when they get a true Hunterian chancre, they present the true bullet bubo, which compares well with that of the white race. There is a much greater number of perineal abscesses after urethral strictures than in the white, but when they are operated upon there is a less percentage of urethral fever, and they generally recover well.

DR. L. MCLANE TIFFANY thought that it should be remembered that the true negro is at present very seldom seen. The difference between the resistance of the true negro and that of the mulatto is well illustrated in the teeth. The negro seldom loses his teeth, but the

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mulatto has teeth of no resistance at all. Studying the peculiarities of the negro race, he said, is a sort of laboratory work. It is at present a question, what soil is best suited to the cultivation of the infectious organisms. Just as in the laboratory we learn what soil, whether gelatine, potato, bouillon, or what not, is best suited to the cultivation of a particular germ, so we must ascertain what race is most susceptible to the growth of peculiar germs.

DR. B. A. WATSON then related

AN EXPERIMENTAL STUDY OF THE EFFECTS OF PUNCTURE OF THE HEART IN CASES OF CHLOROFORM NARCOSIS.

(See page 619.)

DR. N. P. DANDRIDGE remarked that the interest in such experiments as these is the practical deductions we can draw from the investigations on animals to man, and here he thought we should be exceedingly careful not to apply too freely these deductions; for the conditions which present in the human being under chloroform are very different from those in the animal under experimentation. In animals the anæsthetic is pushed purposely to a dangerous degree; in some instances the anæsthetic was given at first in a fatal dose. The accidents which happen with chloroform very often occur when only a small amount of chloroform has been taken—in the beginning of the giving of chloroform and before the operation has commenced—the result being probably due to its inhibitory action on the heart.

It appeared to him that there was one point in which the experiments did not illustrate fully what was desired, and that was the question how long after the failure of the heart the puncture will stimulate the cardiac action. It is not at all unusual in cases of accident with anæsthetics, for recovery to take place after apparently fatal failure of the heart's action has occurred, without the adoption of any such measure as that referred to in the paper. If in the experiments the puncture has been successful after the lapse of five or ten minutes, the result would have been much more valuable. In the paper presented by Dr. Senn on "Air Embolism," a few years ago, it was shown that in animals in which there was impending death from the introduction of air into a vein, a certain number could be relieved by direct aspiration of the right auricle, provided it was done rapidly, and provided the amount of air was not excessive. The object of his experiments, however, was to relieve distention and not simply to stimulate by the traumatism the muscular fibres of the heart. With reference to the comparative safety and efficiency of puncturing the right auricle and the right ventricle, he thought that in the human subject it would be much easier as well as safer to puncture the auricle.

Further, the comparative availability of this measure with artificial respiration, the inhalation of the nitrite of amyl, and the hypodermatic injection of the sulphate of atropia should be carefully considered. The preliminary injection of morphia and atropia has, he thought, a particular influence in the prevention of heart failure.

DR. JOHN B. ROBERTS thought the paper instructive in two directions, one intentionally instructive, the other, perhaps, unintentionally so. Dr. Watson has shown the stimulating effect of puncture of the heart, especially if the ventricle be struck; he has shown, also, the almost constant possibility of producing death by the inhalation of chloroform. In his experiments he has shown not only that the stimulating action is greater if the ventricle be punctured, but that the danger is less. That puncture of the auricle would be more dangerous would be naturally supposed from the fact that its walls are much thinner than those of the ventricle, and consequently less likely to prevent the extrusion of blood.

The point raised by Dr. Dandridge, that in these experiments a large quantity of chloroform is given, whereas in the human subject only a very small quantity is often given, led him to take rather the opposite ground, for he thought the measure would be more likely to prove successful in man under a small amount of the anæsthetic than it would in dogs under a large amount, provided dogs and men are susceptible to the same treatment, The paper of Dr. Senn was *à propos* in this connection, inasmuch as that author found that the withdrawal of blood from the heart cavity stimulated its action. With reference to the injection of atropia in chloroform and ether narcosis, he thought that there could be no doubt as to the drug being a cardiac stimulant, but its physiological action is slow, probably more so than that of digitalis. Reference was also made to the experiments of Westerbrook on the human subject under the idea that he could probably relieve the engorgement of the heart by withdrawing blood. The speaker was particularly gratified to hear Dr. Watson say that it is safer to puncture the ventricle than the auricle, for Dr. Westerbrook had taken the ground that the right auricle could be more safely punctured than the right ventricle, which seemed to him erroneous.

DR. L. MCLANE TIFFANY thought the record of experiments was open to marked criticism. First, it is well known that the dog under chloroform behaves in such a peculiar manner, that for experimental work in laboratories chloroform is never used. The dog behaves absolutely differently under chloroform from the human being. It is not, therefore, proper to make deductions from the dog to the human being. Another point was with regard to the conclusions adduced by the experimenter, that it was advantageous to puncture the heart in chloroform narcosis; but whether it was the heart of a dog or that of a human being was not stated. If the human heart was meant, he could not agree with Dr. Watson. It is very different to do a thing in the laboratory and advise others to do it in practice from actually carrying it into practice.

DR. R. A. KINLOCH had punctured the heart in a case of chloroform narcosis. He was about to operate upon a patient for diffuse abscess of the skull. Instead of using the "A.-C.-E." mixture as was his custom, his assistant anæsthetized the patient with chloroform. It was seen that the patient was about to die. All the usual expedients were resorted to, but the patient appeared to be dead. An assistant suggested puncture of the heart. The ventricle was twice punctured. No effect was observed. A long hypodermatic needle was used.

DR. W. A. BYRD called attention to the combination of bromide of ether, chloroform, and ether which he had been using. Only a drachm or two is required to produce anæsthesia, and he had used it many times with no bad symptoms.

DR. THOMAS J. DUNOTT, of Harrisburg, reported a

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case in which the heart had been twice punctured. The first puncture was made for the removal of pericardial fluid. The case was one of dilated heart, with general dropsy, œdema of the lungs, etc. The patient fell into the hands of some irregular practitioners. They borrowed an aspirator from a neighboring surgeon and aspirated the patient. They stated that they had withdrawn a large amount of fluid from the pericardium, which immediately coagulated; but it was otherwise learned that the fluid was pure blood. The patient seemed benefited by the operation and recovered. Subsequently, however, the operation was repeated, and the patient died.

DR. WATSON, in closing the discussion, replied first to the remark of Dr. Dandridge, that there was no clear statement in the paper as to how long after the cessation of the heart's action remedial aspiration may be accomplished. The experiments, as read by him, on the contrary, show that he had repeatedly excited the action of the heart three minutes after its cessation. In one instance he had punctured four minutes after and got no response. It is quite certain that vitality remains and that there is a certain irritability that remains for a certain period, possibly not a fixed period after cessation of the respiration; but to determine this period would require a vast number of experiments.

With reference to the puncture of the right auricle and ventricle, he had arrived at two conclusions. First, the walls of the auricle are very much thinner; there is much less muscular tissue to be irritated. It is in every sense the reservoir of the heart. The propelling power resides in the strong muscular ventricles. There is another reason for not puncturing the right auricle; because, since the walls are thin, the puncture endangers the life of the patient from the consequent leakage. The needle, when left in the walls of the ventricle, does not produce laceration, but it does so if left in the thin walls of the auricle; and he thinks the same occurs when the auricle is punctured. There is no leakage from the right ventricle, or, if any, it is from the cardiac veins, and not of any consequence. The main hemorrhage from the cardiac veins was in his experiments comparatively trivial; with regard to the difference between the action of chloroform upon the animal and the human being he was familiar. The difference, however, is all in favor of the man, and not of the dog. Chloroform cannot be continued as an anæsthetic any length of time in the dog. At a former meeting of the Association he had shown that when attempting to make some experiments under chloroform, half his dogs were lost. The same pathological conditions are found when chloroform is used upon the dog, as when it is used upon man. It is found constantly that the heart is in diastole, and that the veins of the lung are engorged, unless previous hemorrhage have taken place.

Now the object of the heart puncture, he continued, is twofold: First to irritate the muscles and cause contraction. He thought that his paper would lead to the conclusion that the puncture does, by its irritation, cause muscular contraction. Now you may have muscular contraction still taking place, but if the heart is distended with blood, and if the heart does not contract strongly enough to propel this column of blood what occurs? The heart becomes paralyzed. Now he thinks that in addition to puncturing the heart it is advisable to enter the ventricle and withdraw some blood. The walls of the heart are paralyzed by overdistention, just as occurs when the walls of the bladder are paralyzed by overdistention. The experiments showed better results when he succeeded in withdrawing some blood, than when he simply punctured the ventricle.

With regard to atropia, he expressed greater confidence in a needle thrust into the heart than in atropia. The rapid use of chloroform, he added, does not produce the most favorable condition of the animal for resuscitation. Professor Sayres believes that chloroform should be given rapidly, by excluding all atmospheric air. His experiments showed that in two instances, where chloroform was thus given, the heart's action continued a little longer than respiration; and that when it was cautiously given, he found that in every instance its action was more uniform, and that it did not kill the animal so quickly. Sometimes in experimenting on dogs one finds that the animal dies suddenly after having taken only a very small amount of chloroform, while in other instances a large amount is required. In one instance the animal breathed eight minutes after the cessation of the heart. The dog could be aroused two or three minutes after the heart ceased to beat. It is better, therefore, to give chloroform cautiously, and with an abundance of atmospheric air. In the first forty experiments he had determined to kill the dog as quickly as possible; while, in the latter, he was not so rapid with the anæsthetization, and he had resuscitated six of the last twenty dogs.

(To be concluded.)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 19, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. L. EMMET HOLT read a paper on

SPONTANEOUS ABSORPTION IN EMPYEMA IN CHILDREN, AND THE RELATIVE ADVANTAGE IN CHILDREN OF ASPIRATION AND EARLY INCISION.

He said that more than one-half of all cases of empyema occur in subjects under ten years of age. The prognosis, however, is better at this than any other period of life; there being different causes in the different classes of cases. Spontaneous absorption may possibly occur, but it is exceedingly rare, and he had been able to find but two cases of this on record in which the diagnosis was verified by the test of the hypodermatic syringe. Formerly, evacuation through a bronchus and an external opening had been regarded as the most favorable termination of the condition, but he had not succeeded in finding much definite information in regard to its frequency or results. Pneumothorax, he believed, is very rarely produced in children. On the whole, it is evident that the chances of recovery by means of nature's unaided efforts, are extremely small.

Having remarked that empyema is in reality nothing but an abscess with the peculiarity of having its outer wall rigid, and its inner wall yielding, he said that the indication for treatment is to try to get rid of the pus in the easiest and safest manner possible, and that the

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only methods which he should discuss were those of aspiration and free incision. The advantages claimed for aspiration are: (1) simplicity; (2) freedom from danger; (3) that it does not remove the fluid rapidly; (4) that it does not require general anæsthesia; (5) that it does not require the confinement of the patient to bed; and (6) that many cases are cured by aspiration alone. As a matter of fact, he said, these alleged advantages, with the exception of the last, are not superior to those possessed by incision. Of 121 cases of aspiration collated by him, 23 cases, or 19 per cent., were cured, and 6 died. The remainder were subjected to other methods of treatment. In all but one of the 21 successful cases the empyema was localized, and in 8 a single aspiration was sufficient to effect the cure.

Aspiration has many obvious objections, and among them are the following:

(1) The entire quantity of fluid cannot be removed by this means. (2) Where septa exist in the pleural cavity, but one division of the latter may be evacuated. (3) The terror excited in children, especially when the aspiration has to be repeated a number of times, constitutes a serious obstacle to its success. (4) There are certain cases in which aspiration is not available, and if the case is allowed to go on for a considerable time without evacuation, septicæmia, and other dangerous consequences, are likely to ensue.

Among the advantages of incision are, first, its universal applicability, and, secondly, the fact that it enables the surgeon to explore the pleural cavity thoroughly. While the exposure of the cavity and the admission of air were formerly well-founded objections, since the introduction of antiseptics this is no longer the case. As to the use of general anæsthetics, Dr. Holt said that in two instances he had seen death result from this cause, in consequence of the rupture into a bronchus. He had never known of this untoward result to occur in children, but these cases ought to be sufficient to warn us against the employment of general anæsthetics when emphysema is present. He did not know whether local anæsthesia by cocaine had been resorted to in this connection, but he should suppose that this would answer every purpose.

Considering the results that were met with, it is no wonder that a low estimate was entertained of the operation by the older surgeons, and Dr. Holt quoted the opinion of Sir Astley Cooper and others, whose experience led them to regard it as almost necessarily fatal. He had collected 59 cases in children, performed at a later period, but before antiseptics had come into as general use as at present, in which there were only 8 deaths. Out of 63 cases in which the operation was performed with strict antiseptic precautions, however, there were but two deaths, and he thought that no more complete evidence could be furnished of the advantage of antiseptics than this. As to duration, out of 80 cases in which antiseptics were used, 5 cases lasted four months, or more, and in the remaining 75 the average duration was six weeks. In 21 the duration was one month, or less. In cases in which antiseptics were not employed, the average duration was six months.

The conclusions at which he had arrived were as follows:

(1) All methods yield better results than non-interference. (2) A case should never be left to the unaided efforts of nature. (3) Aspiration holds out a possible chance of cure. (4) If, after two aspirations, the fluid continues to accumulate, this method should not be persisted in. (5) In large effusions, it is well to make one aspiration before resorting to incision. (6) In all other cases a free incision should be made, preferably under local anæsthesia.

Finally, he said, no better guide could be observed than that contained in the words of Wagner: "Early incision, perfect drainage, and complete antisepsis."

DR. F. HUBER read a paper on

ACUTE EMPYEMA IN CHILDREN.

He claimed that no medicinal agent has any effect in producing absorption, but symptomatic and palliative remedies are of service, and it is important that the patient should be placed in the best hygienic surroundings possible. As regards surgical interference, the more promptly this is made, in general, the better will be the results obtained; provided it is not during the first few days of the attack. As a rule, he had found it better to wait until a week or ten days had passed, so as to allow the acute febrile symptoms to subside, and give the patient a chance to rally. After this judicious delay, aspiration might be tried first; the hypodermatic needle having been previously inserted at the point where the aspiration was to be made, in order to be sure of the presence of pus in this situation. Anæsthetics are not required in this operation.

If, after aspiration, the pus is found to be laudable and inodorous, and if it does not accumulate very rapidly again, aspiration may be repeated; but, as a rule, more radical measures are called for. Incision should not be longer delayed, because the disease is characterized by fibrinous deposits, as well as purulent effusion, and the fibrin is liable to become decomposed and infectious. The incision should be from an inch to an inch and a half in length, and a drainage tube inserted; after which the cavity should be washed out with antiseptic fluid, and an antiseptic dressing applied. He had found local anæsthesia by cocaine to be all that was required for this operation.

Of thirteen cases in which he had performed it, three had proved fatal; one of the children dying from exhaustion, one from gastro-intestinal catarrh, and one from erysipelas. All but two of the remainder had made perfect recoveries, and the average duration of the trouble was seven weeks. He had used injections of bichloride solution (1 : 5000) in all his cases; and for the final injection a solution of 1 to 10,000. A good rubber tube is essential, and he is in the habit of employing the plan proposed by Baxter for preventing it from slipping into the cavity. The retraction of the chest remaining on the affected side, he had found could readily be overcome by suitable gymnastics and exercise in the open air.

DR. ROBERT ABBE then read a paper on

GENERAL CONSIDERATION OF THE SURGICAL TREATMENT OF EMPYEMA.

In the treatment of empyema, he said, it is necessary to abandon all idea of securing absorption, and the first thought should be how to rid the patient's chest of the accumulated pus most promptly. Aspiration may be repeated a number of times, and in a certain number

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of simple cases it is competent to secure recovery. As a rule, it is of more service in children than in adults. It is somewhat repugnant to the surgical mind, however, to leave even a small amount of pus in such a place as the pleural cavity, and if the trouble continued for any length of time after aspiration, complete evacuation should be practised. By far the best results have thus far been obtained with free incision, followed by drainage; and experience shows that the eighth or seventh intercostal space is, as a rule, the best position for the incision. Two large drainage tubes, of the thickness of the little finger, are usually advisable.

In performing this operation, he uses a spray of carbolized solution of three per cent. strength, produced by means of a simple hand-bulb. As soon as the flow ceases on aspiration he dresses the wound with sublimate gauze and iodoform.

What we want, first and last, said Dr. Abbe, is a thorough outlet, and the purity of the wound is the other important factor. In the great majority of cases, he thought, there is no need of injecting the cavity. When there is a hectic condition, however, antiseptic injections, followed by hot water ones, should be employed; and bichloride solution (1 : 8000), or a weak iodine solution, might be used for the purpose. Two serious results have been observed from injections, viz., toxic symptoms from the agents employed, and sudden death due probably to either thrombosis or reflexes from the pleura.

The presence of the drainage tube occasionally causes denudation of the periosteum of a rib, which has been erroneously called necrosis. When this occurs, it is necessary to perform resection, but he considered it unjustifiable to resort to this procedure at first.

As regards anæsthetics, a few whiffs of chloroform will answer perfectly well for children, but in adults local anæsthesia with cocaine is preferable. A four per cent. solution should be injected into the tissues, and the incision not made until about fifteen minutes afterward, when the anæsthetic effect has reached its maximum intensity. When there is decomposing fibrin, resection of a piece of rib is sometimes necessary in order to secure free irrigation; and occasionally, in cases where a suppurating cavity remains after empyema, Estlander's operation of resecting several ribs proves very satisfactory. Dr. Abbe also alluded to "through drainage" and Hewitt's method of "perflation," the latter of which, he thought, can never supplant free drainage.

DR. T. H. BURCHARD had operated in eleven cases of empyema, all of which were of chronic character. The shortest duration up to the time of incision was two months, and the longest, thirteen months; the average time being six or eight months. The youngest patient was three years of age, In all the cases the operation was identical, and all were cases which had previously been aspirated either by himself or some other physician. He made a free incision from one and a half to two and a half inches in length, along the eighth rib. The amount of purulent fluid evacuated varied greatly. In one boy, of seventeen, whose case was one of the most chronic met with, there were only seven ounces, while the largest quantity evacuated was twelve quarts. This was taken from the left chest of a young man of twenty-eight, in whose case one and a half pints had been removed three days previously by aspiration. In this instance two drainage tubes, six inches in length, were employed, and, notwithstanding the fact that they were secured with plaster to the chest-walls, they slipped into the cavity during the night. He was not permitted to go on with the case, and it was not until a year afterward that they were removed by resection of the ribs, the operation being performed by the late Dr. James L. Little.

As to the results of his cases, he has followed up seven of them for at least one year. Three entirely recovered; two developed phthisis and died, and a third, a year and a half after the operation, now had phthisis; one died of dysentery, of tubercular origin, fourteen months after the operation. In two cases he had observed in children, one of which was among his own cases and the other of which he had seen in consultation with Dr. J. Lewis Smith, hemorrhage sufficient to cause death had resulted from the operation; and it seemed to him that this accident is analogous in character to that which sometimes happens in the case of old men where too sudden and complete evacuation of the bladder is made, resulting in capillary extravasation. In these cases no artery was cut and no hemorrhage occurred from the wound, and he thought the matter is one worthy of serious consideration, especially as he has been able to find no reference to such an occurrence in medical literature.

As to the time of performing the operation, he thought it should be done early. If delayed too long, the patient is liable to die either of phthisis or tubercular disease of the bowels.

DR. H. N. HEINEMAN said that empyema in children and empyema in adults are two entirely different affections, and in the former, when it is on the left side, it is very apt to be complicated with pericarditis. Having referred to the differences in the physical signs in the two classes of cases, he said that in children especially, on account of the gurgling met with, the affection is liable to be mistaken for phthisis. The use of the hypodermatic needle is always desirable for diagnosis. As regards treatment, the indications had been very well stated by the previous speakers. If after aspiration the pus remained sweet, he thought it well to resort to this procedure a second time; after which incision should be practised, In the last ten years he has made use of only one form of incision, and that is the one known as "thorough drainage." This had been well described by Chassaignac as early as 1857, and he wondered that it had not received more attention than was the case, since it was, as a rule, followed by the best results.

DR. E. G. JANEWAY having stated that in his own practice, if one aspiration failed to produce relief, he resorted, with very few exceptions, to immediate incision, spoke of some comparatively rare conditions which had not been alluded to in the discussion. The first of these was empyema as an accompaniment of pyæmia, which was usually due to a gangrenous focus. Again, there are extreme cases in which there were double empyema and purulent endocarditis, when the result was rapidly fatal. There are other cases in which, although the fluid is septic, we are debarred from operation, and one of this kind he related. The patient suffered from pneumonic consolidation, pyo-pneumo-

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thorax, and sepsis, and the fluid in the chest was very foul. Yet at the highest possible point at which an incision would have been practicable only blood could be drawn with the hypodermatic syringe. It was, therefore, necessary to leave the case to the efforts of nature, and, strange to say, the patient had made a complete and perfect recovery. In making an incision it is sometimes necessary to choose a different site from the axillary space, and in such cases we should select the spot where we can get pus. He thought it a good rule always to insert a hypodermatic needle at the point where the incision is to be made immediately before operating.

DR. A. L. LOOMIS had been accustomed to regard the pleurisies of children as very different from those of adults. Thus, acute suppurative pleurisy is very common in children; and, indeed, whenever he found that a child's chest filled rapidly he felt pretty confident that empyema was present. The treatment which he adopted in such cases was such as had been described here to-night, and he had found it very satisfactory. But acute suppurative pleurisy in adults is a very different affair. It is a dangerous affection, and often rapidly fatal. He had come to regard it as infectious, and it is usually associated with some acute pneumonia in the other lung. We have, therefore, to contend with an acute disease, which cannot be cut short by removing the products of inflammation. After the acute stage had passed, however, he believed that incision did good, and was called for.

In his opinion these cases are fibrinous pleurisies at the beginning, and after this condition has continued for about twenty-four hours the chest rapidly fills with pus. Chronic empyema is not a simple pleurisy. We have not simply the pleural cavity to deal with, but a constitutional condition, and it is necessary to seek for the cause of the pus. It is not enough to operate; but, in addition, the physician is called upon to sustain the patient's vital powers in every possible way.

DR. J. WEST ROOSEVELT took exception to the use of the carbolic spray, as advocated by Dr. Abbe, since it is confessedly inefficient in destroying germs, and he also thought that antiseptic injections are entirely useless, on the ground that no solution that can be employed can have any possible effect on the walls of the pleural cavity on account of the thick covering of fibrinous exudation with which they are coated. As to the proposed method of "inflation," he thought that if a good way of producing perforation of the lung is desired, this procedure should be adopted.

DR. CAILLE objected to the use of carbolized injections in children, on account of the danger of producing toxic constitutional effects.

DR. J. E. WINTERS said that he had careful records of ninety cases of pleurisy in children, and in only four of these was there empyema. In the latter, this condition existed when the patients were first seen, and of the remaining eighty-six cases, not a single one terminated in purulent effusion. It was also a fact that not one of these cases had been lost sight of. Owing to the results thus met with in his experience, he felt obliged to take exception to the statements made here to-night in regard to the frequency of purulent effusion in children. In the simple pleurisies commonly met with he had often seen the temperature go up to 103° and 104°, but under the employment of rest, hot applications, and sedatives the cases almost all terminated in resolution in the course of a week or so. In no instance under his care had empyema resulted. Two cases were operated on on account of the mechanical pressure produced by the large effusion present, and while they both proved fatal, at the autopsy no pus was found in either case. He had never seen a case of empyema in a child in which there was not an abundance of serum, and he, therefore, considered that the fluid in such cases was capable of absorption. Hence the condition was very different from that existing in empyema in adults, and he should not deem it advisable to resort to surgical interference except to relieve the effects of mechanical pressure upon the viscera. Children with empyema invariably lay upon the affected side, and, therefore, in order to facilitate aborption he encouraged them to sit up in bed as much as possible. Dr. Winters decidedly objected to the use of the hypodermatic syringe or the aspirator until such procedures were absolutely necessary, as he believed that the entrance of the needle into the pleural cavity directly tended to produce pus; and Dr. Francis Delafield, he said, had expressed the same opinion to him. The termination in empyema, as he had said, is naturally very rare in children; but when it did occur, and operative procedure was called for, he was decidedly in favor of free incision in preference to aspiration.

DR. HEINMAN related a case in which there were symptoms of collapse due to hemorrhage, produced, no doubt, in the same way as in the cases mentioned by Dr. Burchard, in which the child was apparently saved by the injection of a certain amount of fluid which was allowed to remain in the cavity.

THE PRESIDENT stated that he had frequently observed severe coughing to be set up by the removal of the fluid from the pleural cavity, and that this could only be arrested by partially filling the cavity again by injection. This seemed to him to be due to the irritation caused by the sudden filling up of the bloodvessels in consequence of the bronchial dilatation resulting from the evacuation.

DR. ABBE said that in his opinion the phenomena sometimes noted after the withdrawal of the fluid were of reflex origin; and he mentioned a case in which there resulted aphonia, disorders of vision, and reflex hemiplegic symptoms.

THE PRESIDENT thought that the symptoms mentioned might probably be explained by sudden hyperæmia of the larynx, with temporary anæmia of the brain.

NEWS ITEMS.

THE CLIMATOLOGY OF ST. AUGUSTINE, FLORIDA.—DR. FRANK F. SMITH writes us as follows: Though temperature is but a factor in that product which we call climate, its study may prove of interest to many physicians who desire for their patients a mild winter climate with abundant pure air, sunshine, and opportunity for outdoor exercise, such as St. Augustine, by the sea, affords. In the table appended it will be seen that in the one hundred and eighty-one days of the six cold months, ninety days (about one-half) present a maximum temperature above 70°. Again, in this

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same period, one hundred and fifty-six days show a temperature above 60°, leaving but twenty-five days in six months possibly unsuitable for the outdoor life of invalids. With such a temperature, but twelve rains in the daytime, only three fogs in the whole winter, an average cloudiness of 4.18, and softened tonic sea breezes, which no record can estimate, St. Augustine may well urge a strong claim to public attention.

ST. AUGUSTINE, FLORIDA, 1886–87.

(Records at U. S. Barracks.)

	Nov.	Dec.	Jan.	Feb.	Mar.	April.
Monthly mean	61.39	52.90	52.60	62.91	59.07	67.56
Mean at 7 o'clock A.M.	55.90	49.30	46.94	58.35	53.30	63.66
Mean at 2 o'clock P.M.	70.83	63.55	61.58	71.11	70.45	74.33
Mean at 7 o'clock P.M.	57.43	50.45	49.29	59.28	56.20	64.70
Minimum at 2 o'clock P.M.	52	45	42	52	59	57
Minimum for the month	38	31	27	39	37	40
Number of days with maximum temperature above 70°	18	6	9	19	14	24
Number of days with maximum temperature above 60°	27	25	20	26	29	29
Greatest fall of temperature from 2 P.M. till 2 P.M. following day	20	20	20	17	16	7
Average cloudiness (scale 10)	3 10	6 06	5.21	3.47	2.55	4 69
Rainy days (at night marked "n").	1 (n)	7 (3n)	5 (4n)	1 (n)	4 (2n)	6 (1n)

THE TENNESSEE STATE MEDICAL SOCIETY held its fifty-fourth annual session at Nashville last month and the following officers were elected to serve for the ensuing year:

President.—Dr. P. D. Sims, of Chattanooga.

Vice-Presidents.—Dr. T. J. Happel, of Trenton; Dr. Richard Douglas, of Nashville; and Dr. J. M. Masters, of Knoxville.

Secretary.—Dr. Ambrose Morrison, of Nashville.

Treasurer.—Dr. Richard Cheatham, of Nashville.

APPOINTMENT OF HOSPITAL PHYSICIANS IN CHICAGO.—The Board of County Commissioners has recently removed the appointment of the attending staff of the Hospital from the domain of politics. It has voted the present staff shall remain during good behavior, and that any vacancies in its membership shall be elected by an Advisory Board of five medical men, whom it has appointed. In case of a vacancy, the staff is to nominate three persons from whom the Advisory Board is to elect one. The Advisory Board, as at present constituted, has a representative from each of three regular medical colleges.

A SURGEON REFUSED HIS FEE.—The newspapers give prominence to a dispute between Dr. Marion Sims and Nat. Goodwin, husband of the late Eliza Weathersby, the actress. Payment is refused on the old ground that "the treatment did no good." Dr. Sims was called in consultation by the attending physician, Dr. T. S. Robertson, who was in doubt as to the nature of an abdominal tumor from which his patient suffered. The result of the consultation, that an operation afforded the only hope of cure, being communicated to the patient, she earnestly requested its performance. The outcome being fatal, the husband claims that the operation did no good, and should not be paid for! Under this extraordinary theory surgeons would soon have to abandon their work. Such actions as those indicated above are particularly unjust. Many surgeons undertake desperate operations against their own inclination and even interest, solely to give the patient an only chance. In such cases the attempt to escape the payment of the fee by claiming that "treatment did no good," furnishes an illustration of colossal meanness, beyond the power of dramatic art to exaggerate or even burlesque.—*Medical Record*, May 28, 1887.

UNAUTHORIZED USE OF PHYSICIANS' NAMES IN ADVERTISING.—The profession in Chicago is now contemplating the outrageous position into which a physician may be placed by an unscrupulous advertiser. The vender of a sulphuretted mineral water seized the opportunity of the present popularity of the rectal injections of gas for consumption, to improve his trade by a flaming advertisement of the water, with a cut of the apparatus used, and fulsome statements that the gas from this water was a sure cure, etc. From reports of a meeting of the Medical Society, he learned the names of a number of physicians who were using the measure, and embodied their names in the advertisement in such a way as to make it appear that they endorsed in full the statements it contained. The performance has been denounced in a card by all the physicians whose names were used, but this only slightly counteracts the effect of the outcry. It is interesting, anent this subject, to note how generally the profession here is now reaching the conclusion—the only one that ever ought to, or could logically have been formed—that the most desirable, as the only definite and exact way to secure the sulphuretted hydrogen for this kind of medication is through the well-known artificial compound with the sulphide of sodium, and not by means of any natural water.—*Boston Medical and Surgical Journal*, May 26, 1887.

PROFESSOR SEMMOLA has succeeded in founding a Chair of Clinical Therapeutics in the University of Naples, to which he has been called.

THE BERLIN MEDICAL SOCIETY AT THE CONGRESS.—A press cablegram, dated Berlin, May 27, states that a committee of the Berlin Medical Society has considered the suggestion made in certain American quarters that the Society be officially represented at the Medical Congress to be held at Washington. Professor Virchow states that the Committee has decided against the suggestion.

DEFENCE OF PROFESSIONAL INTERESTS BY FRENCH LAW.—*The British Medical Journal* of May 14, 1887, reports the following: A case was recently decided in France, the result of which shows how much keener an appreciation law takes of professional interests in France than in our own country. A journal, the *Echo de l'Est*, had thought fit to announce to its readers that Dr. Bernard, of Thiancourt, had just performed a surgical operation, in consequence of which the patient had succumbed. Dr. Bernard immediately brought an action against the journal for libel, inasmuch as it was inferred that the death of the patient was attributable to the operation. The Court of First Instance of Bar-le-Duc, looking at the matter as one of public interest, author-

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ized the incriminated journal to substantiate the allegation. On appeal, however, the court at Nancy quashed the decision of the other court, and declined to allow the journal to plead, declaring the allegations to be groundless; adding, moreover, that, "inasmuch as they were based on a fact of an essentially private nature, altogether outside public discussion, and quite independent of journalistic criticism," the journal was not warranted in making any such statement, and was condemned to pay 10,000 francs damages to the practitioner whose reputation had been assailed. It is quite refreshing, in these degenerate days, to see that, in one country, at any rate, the reputation of a medical man is recognized as having an appreciable value. The interesting feature of the case, however, lies in the decision of the tribunal that such cases are beyond the competence of a newspaper to criticise, and are, in any event, of an essentially private nature. It would be a great boon if such a sentiment could be imported into this country. A few decisions like this would doubtless have a salutary effect in checking the by no means disinterested curiosity of scandal-mongers, who appear to consider themselves competent and at liberty to comment upon both the malady and the treatment, to the annoyance of the patient and the discomfort, and even damage, of the medical attendant.

THE CLIMATE OF COLORADO SPRINGS FOR THE PHTHISICAL.—A gentleman who had tried the favorite resorts of Europe and America, describes the advantages of Colorado Springs as follows in the *New York Tribune* of May 22, 1887:

No climate is absolutely perfect, so I shall first call attention to the only blemish in the climate of Colorado Springs. We have some wind and, at times severe wind, yet the number of days when an invalid is compelled to remain indoors on account of strong wind is not more than the number he is compelled to spend indoors at Davos, in Switzerland, on account of the falling of snow. Furthermore, if an invalid finds the wind objectionable he can readily escape it by changing to Manitou Springs (ten minutes by rail), which is even more sheltered than Davos.

Now as to the advantages of Colorado Springs:

1. Its altitude is six thousand feet above sea level. To the north the land rises gradually, thickly wooded, to the height of 7500 feet. Six miles to the west runs a spur of the Rocky Mountains culminating in Pike's Peak, 14,200 feet high. Thus the city is sheltered to the north and west and is open to the south and east.

2. The sunshine is almost uninterrupted. During the winter there is no rain, no cloudy or foggy weather, and hardly any snow. Snow falls very rarely, and when it falls it disappears quickly and almost miraculously, leaving neither mud nor dampness behind.

3. As the city lies open to the east and the higher mountains to the west are at some distance, the daily duration of winter sunshine is very great—fully forty per cent. greater than at Davos.

4. The character of the soil is porous. This is a very important advantage. If rain or snow falls at Denver, for example, the result is mud, and mud means continued dampness. There is no mud at Colorado Springs.

5. The invalid is not restricted to hotel life. Boarding-houses and furnished houses abound. Housekeeping, owing to the presence of a large number of very superior stores, is made easy. Should the invalid prefer hotel life, he will find the hotels first-class, but be it said that no American hotels are so carefully managed as to comfort nor so particular as to ventilation as are the hotels of the Riviera or of Davos.

6. There is nothing of the hospital character about Colorado Springs. Of its 7000 inhabitants, many never were sick, and many who once were are now perfectly cured. The invalids are scattered to such an extent, there are so many amusements and points of interest to disperse them, that one never feels the depressing influence of being in a great consumptive hospital.

7. Amusements are very plentiful. There are few cities in the world that offer such a variety of beautiful rides and drives. Invalids are out riding or driving nearly every day in the year. Many people of wealth and culture reside here, society is pleasant and clubs of all kinds abound—social clubs, reading clubs, musical clubs, fox-hunting clubs, etc. An invalid here has neither time nor disposition to mope.

8. One of the objections I found to Davos and the Riviera was that when spring came the patient was chafing to get away. I do not find this at Colorado Springs. Nor is it necessary. The summer climate is just as healthful and just as exceptional as the winter climate. In fact, the reputation of Colorado summers brings thousands of tourists here every summer. The days are warm, not uncomfortably so, and the nights are always cool enough to make a heavy blanket necessary. Some invalids go up into the beautiful near-by mountain parks (8500 to 10,000 feet high), and live at a farm house or camp out. Some change to Manitou Springs and enjoy witnessing the summer gayety. The majority remain here and are equally benefited.

9. If a patient feels disposed to make a change during the winter, he has a large choice of places which he can visit with safety. He may go to Denver or to any of the towns between Colorado Springs and Pancha Springs inclusive. This belt of territory is all favored with an exceptional climate. On the other hand, if an invalid finds that the climate does not agree with him, he can travel hence to Southern California quickly and comfortably.

COMPLAINT REGARDING THE CONDITION OF THE VIENNA HOSPITAL.—In a recent session of the Austrian Parliament a complaint was made regarding the condition and administration of the Vienna General Hospital. The charge was answered in a general way, and is now undergoing investigation.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 28, 1887.

DEANE, C. W., *Passed Assistant Surgeon*.—Detached from the "Dale" and ordered to hospital, Mare Island.

HARVEY, H. P., *Surgeon*.—Orders to "Iroquois" revoked, and wait orders.

DIXON, S. H., *Passed Assistant Surgeon*.—Detached from Navy Yard, Washington, D. C., and ordered to the "Dale."

WAGGENER, J. R., *Surgeon*.—Detached from the "Iroquois" and wait orders.

WHITE, S. STUART, *Assistant Surgeon*.—Ordered to Receiving Ship "St. Louis," Navy Yard, League Island.

FIELD, DR. JAMES G., of Gordonsville, Va, commissioned Assistant Surgeon in the Navy, May 23, 1887.

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THE MEDICAL NEWS.

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AMERICAN MEDICAL ASSOCIATION.

THIRTY-EIGHTH ANNUAL MEETING, CHICAGO, 1887.

THE PRESIDENT'S ADDRESS.

Delivered June 7, 1887.

BY ELISHA H. GREGORY, M.D.,
OF ST. LOUIS.

CELL-ANTAGONISM.

OBVIOUSLY, force and matter "make up" the universe. Force implies antagonism, antagonism perpetuates motion. The living cell is the embodiment of nature. Cell-antagonism is life. Multicellular organisms represent a community of vital unities. A model organism in equilibrium is health. Cell struggle is the gist of modern pathology. Every organ and every element is vulnerable. The strength of resistance in elements and organs, reinforced by the harmony and precision of coördination, and the vigor of counter agencies are the momentous questions.

In seeking for a comprehensive title for our address, we fell upon the the two simple words "cell antagonism," which form the foundation of symptomatology and pathology, conjoined with cell changes, the basis of pathological anatomy, embracing at once the universe of life and all the possibilities of life; disease being but one of the multitudinous phases of life.

Prof. Huxley has likened the body to an army. "Of this army, each cell is a soldier; an organ, a brigade; the central nervous system, headquarters and field telegraph; the alimentary and circulatory system, the commissariat. Losses are made good by recruits born in the camp, and the life of the individual is a campaign, conducted successfully for a number of years, but with certain defeat in the long run."

A model organism assumes that every soldier is a stalwart; every organ, a body of stalwarts with corresponding machinery of coördination and precision, all alike concerted and vigorous to meet the myriads of counter forces, many of which are too cunning for our ken, but ever ready to take advantage of the least failure of our strength, to penetrate our vitals. This force of vital resistance forms the basis of therapeutics; this "vis medicatrix naturæ" will always be the indispensable auxiliary of the physician, without which early abandonment of the art would be inevitable.

The morphologist distinguishes two classes of elements within the organism. One class represents the fixed cells, cells which occupy the fortifications within the intercellular substance; the other class provides for the formation of new tissue, and represents the standing army, sometimes called embryonal substance. Before Cohnheim, our knowledge of the mobile elements—the mobilized army—of the body, was nothing; now most of the literature heretofore relating to neoplasmata is, or has become, obsolete. Now coagulable lymph is impossible without the white corpuscles. Organizable fluids have vanished. Through the industry and ingenuity of the great German pathologist a revolution has been worked in medical thought. The study of the mobile elements of the body—the relatively independent elements—promises much. We can almost see daybreak in pathology, a dawn before the coming light which is to illuminate some of the dark places of this most intricate subject. Already leucocytes substitute fibrine. The latter is the product of the former. Wherever there is localized impairment of nutrition referable to irritation, or defective maintenance of nutrition, the result of inherent weakness, there the leucocytes concentrate, feast on the devitalized structures and thereby develop into a tissue replacing that which they have consumed. When the surgeon wishes to dispose of an adventitious structure—a cyst, for example, in the connective tissue, he lowers the vitality by over-stimulation,—irritation, when he confidently expects the leucocytes to congregate and destroy the cyst, substituting a granulation tissue, which in time becomes scar tissue. Now an organizable fluid as the essential product of inflammation, cells playing a passive part, is a thing of the past. Now cell potency, cell subtlety, and cell antagonism constitute the pith and marrow of medical science. There was a period in the history of pathology when all the neoplasmata sprang from the tissue cells, now the place and destiny of tissue cells are fixed. When the fixed elements yet contain some undifferentiated protoplasm, proliferation is possible, otherwise not probable. The mobile cells constitute the mobilized army; the great coördinating centres assemble them at any moment, ready to antagonize hurtful agencies. Irritation always provokes a concentration of the white cells. Irritation means injury. It may be simple or specific. Either way it is a signal for moving the army in solid phalanx to confront noxious agencies, and the combat is hotly contested till victory or discomfiture.

Inflammation, the keystone of medical science, the standard process by which all other pathological conditions are measured, is only to be explained on the theory of cell-antagonism; it is practically a struggle between irritant bodies and white blood-corpuscles. Foreign bodies are invariably invaded by leucocytes, their swarming having for its object to repel or render inert the offending cause. Observations directed to the white cell have been followed by an inspiring increase in our knowledge of the vital properties of cells. The quality of spontaneous motion once accepted, the idea that the cell played a passive part quickly disappeared and in its stead came the conception of autonomy, the fact that the cell nourished itself, is not nourished, that the cell specialized food for its own purposes, actually breaking up compounds and adapting the products to its own growth and development, strikingly illustrated by an independent form of government, for example,

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the government of the United States. A great statesman has said ours is a "government of the people, by the people, and for the people." Cells live of themselves, by themselves, and for the whole body. The cells make the central government. The coördinating machinery is formed by the cells, and the cells are in their turn centralized and harmonized by this power. The tissue elements are in direct continuity with the centre, but it is otherwise with the floating, wandering cells; yet their behavior gives evidence of their concern for the well-being of the entire organism. Again, the free cells take into their substance the most refractory substance, digesting solid bodies; sponges and green plants yielding to their digestive and assimilative processes. Observations the most patient and trustworthy in the lower vegetables have demonstrated the fact that bacteria have been seen in the substance of amœboid cells; others have been seen pursuing bacteria, ultimately capturing and destroying them. Throughout the whole animal kingdom mesoderm cells use their ingestive power for destroying microörganisms. Further, this property seems to be utilized for the removal of larval organs. Colorless corpuscles present the same appearances and have similar properties and the same mode of origin in the entire range of living beings. When the irritant or harmful agency is particularly obdurate, white cells exhibit a very strange habit of throwing out processes which unite with a similar process from neighboring cells, until a considerable mass of protoplasm is formed by their confluence, constituting a giant cell. Thus an army of giants may be improvised on occasions of extreme emergency: for example, when the tail and gills of the tadpole are to be swept off, this powerful division is ready for the Herculean task.

Apply these facts to the inflammatory process in mammals. Suppose a foreign body lodged, that moment leucocytes leave the bloodvessels and congregate for the purpose of opposing the intruder. In such diseases as tubercle, leprosy, etc., the giant-cells appear, and in their centre their substance, the specific bacillus, is found. Koch found the bacillus of anthrax and the bacillus of septicæmia in the mouse, enclosed by white blood-cells. We say, with these observations before us, inflammation exhibits a new aspect; cells conquering cells as a process of normal physiology; simply the free cells, the white cells resisting injury, there being a provision not only for concentration, but for increasing their number and augmenting their strength corresponding to the emergency. A recent authority, Mr. Sutton, says: "If we summarize the story of inflammation as we read it zoölogically, it should be likened to a battle. The leucocytes are the defending army, their roads and lines of communication the bloodvessels. Every composite organism maintains a certain proportion of leucocytes as representing its standing army. When the body is invaded by bacilli, bacteria, micrococci, chemical or other irritants, information of the aggression is telegraphed by means of the vasomotor nerves, and the leucocytes rush to the attack; reinforcements and recruits are quickly found to increase the standing army, sometimes twenty, thirty, or forty times the normal standard. In the conflict cells die and often are eaten by their companions; frequently the slaughter is so great that the tissues become burdened by the dead bodies of the soldiers in the form of pus, the activity of the cells being testified by the facts that the protoplasm often contains bacilli, etc., in various stages of destruction. The dead cells, like the corpses of soldiers that fall in battle, later become hurtful to the organism they in their lifetime were anxious to protect from harm, for they are fertile sources of septicæmia and pyæmia, the pestilence and scourge so much dreaded by operative surgeons. The analogy may seem to some a little romantic, but it appears to be warranted by the facts." Just here the question obtrudes, "Are the action which follows mechanical, chemical, and thermal injuries, and the action caused by vital injuries alike inflammatory processes?" In the one, that resulting from physical causes, the nutrient processes are not disturbed, simply increased. In the other, that resulting from vital causes, the cell processes are disturbed, thwarted, and vitiated. It seems unfortunate that the action which succeeds to traumatism should be confounded with that which succeeds to specific germs. The nutrient changes come into vigorous play after an ordinary injury, altered in one particular only, viz., the presence of a palpable neoplasm, which substitutes the structures doomed by the injury. The addition of new material is invisible in ordinary nutrition, growth, and maintenance for example, the substitution being atomic. When a structure is destroyed bodily, as in traumatism, the substitution is corpuscular, therefore, palpable. It is certainly perplexing to assume, as does Sir James Paget, that a visible neoplasm is produced by inflammation, but its development is impossible till after the withdrawal of the inflammation. To get rid of confusion, though we do not emerge from error, is to make a step toward truth. The full effect of traumatism is immediate and complete; it cannot increase itself; therefore, its effects are always limited and within the possibility of estimation, for the reason that cause and effect are in precise correspondence; besides, antiseptics do not influence the changes in any particular. On the other hand, the most extensive and severe injuries of vascular parts, involving bones, joints, the great cavities, etc., are possible without producing inflammation, provided antiseptic precautions be taken. When such complication ensues, it is a wound accident, not a wound incident, and the result of infection. There is no disturbing factor in the process incident to repair; no waste products. If pus is found, it is the result of the intrusion of some noxious agency, some contagion, some pestilence; in short, a specific cause.

If it be agreed to call the action inseparable from ordinary injury, physiological repair, the term inflammation is limited to the series of events referable to a vital agency, which, until very recently, has eluded detection. A specific agency determines a class of diseases as distinctive and definite as the living creatures studied in natural history. Cell-antagonism after physical injury is simply a substitution, through the development of mobile cells, of the tissue which has been spoiled. The fixed elements multiply and develop in the expansion and perfection of the several structures of which they are components, but take no active part in the process of repair after injury. After the perfection of the body, the factors favoring proliferation and those which inhabit it must be in a state of balance. In functional hypertrophy, the balance is toward the side

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of proliferation. On the other hand, in non-functional activity, the problem is not so simple; the balance is disturbed toward proliferation by some mysterious agency. How strikingly different when the cell-antagonism is with a vital injury, cell mysteries clash! The bacteria enter into conflict with the mobile and fixed cells, but it is not possible to know how the conflict is carried on. Certainly a series of disturbances ensue in the normal metabolism of the elements. The functional, formative, and nutritive activities, which are the expressions of cell life, must be altered; their vigor perhaps lessened; and their susceptibilities modified. Exceptionally their life is enfeebled or extinguished. The issue of a bacterial affection is either the death of the patient, or the destruction and elimination of the bacteria. It follows that this disturbance of cellular activities is always at the bottom of morbid symptomatology; and observations have shown that disease of this kind, successfully withstood, leaves the elements in a peculiarly unsusceptible condition, insuring an immunity, almost or quite complete, against a fresh invasion of the same or kindred bacteria. This modified susceptibility was practically understood by Jenner. Pasteur, resuming and systematizing the great Englishman's work, successfully modified cell forces, rendering them harmless by cultivation, and sending them on the important mission of destroying the natural proneness to the deadly assaults of the uncultured cells. Whilst we may despair of ever understanding the essential nature of vitality, the study of the causes which regulate life, and their subordination to conditions which may be determined, has led the way to the grandest achievements of recent times. Pasteur and Lister are the great apostles of modern practical thought.

Prof. Huxley has suggested that it may be possible to introduce into the economy a molecular mechanism which, like a cunningly contrived torpedo, shall find its way to some particular group of cells and cause an explosion among them, leaving the rest untouched. Pasteur's cell mechanisms exceed the conception of the great scientist, for they cunningly change the vital qualities of the elements without destroying them. May we not look forward to some great advance in therapeutics in the direction to which Pasteur's genius points, by the study of cell mechanism? Certainly vital subtleties may but cope with vital subtleties. Study of the conditions in which infective agents arise by ascertaining the circumstances which limit or facilitate their diffusion, has already raised surgery to a proud preëminence. With therapeutics it is otherwise, as it is doubtful whether the new facts have yielded the slightest increase of power against the diseases of mankind. Let us not despair. Knowledge must come first, then wisdom brings its practical application. The study of cell possibilities, their readiness and energy in rendering inert noxious agencies, whether introduced from without or arising from within, exhibiting an antagonism at once potent and direct, rather tends to dampen one's therapeutic enthusiasm. The thoughtful student sees nothing abnormal in disease. To be sure there is a physiological emergency, but there is no disorder in the cell processes, rather the perfection of order. If a physical or chemical cause intensifies the cell changes, in other words, determines the physiological emergency, every cell movement is direct, purposive, and efficient, ending only when the intruder is ejected, encysted, or accommodated. On the other hand, if the offence be a vital one, a living cell, a microphite, the spectacle is that of one living creature preying upon another, a declaration of the first law of nature, not an enemy, but an intruder struggling for self preservation, simply a physiological fight for life. Can we hope an ideal tonic for cell-antagonism, such as would innervate the cells on one side and enervate them on the other; the "old chestnut," "Prevention is better than cure," is not yet wormeaten.

Cell-antagonism implies a struggle. The duration of the struggle is determined by the quality of the irritant and the strength and resources of the antagonists. Acute inflammation is a sharp and decisive action; chronic inflammation is slow and indefinite. There are two strikingly important chronic conditions: viz., the interstitial inflammation and the infective granulomata, interesting alike to the physician and surgeon; both are alike disastrous, the one, interstitial inflammation, destroying by cicatricial contraction; the other, infective granulomata, by stopping at the fibroplastic stage, retrogression replacing development. The quality of infection, and the failure to develop beyond the stage of granulative tissue is the exact condition as illustrated by tuberculosis, syphilis, lupus, etc.; in contrast with which is fibrosis of the liver, cirrhosis, fibrosis of the kidney, Bright's disease, fibrosis of the brain, sclerosis, interstitial inflammation, destroying the tissue elements by strangulation, infective granulomata by contamination. Again, the two varieties of inflammation referred to declare that the quality of the irritant determines the effect of the inflammation, the interstitial variety being caused by physical agency, and the infective by a vital one. Cells antagonize physical causes without losing any of their vital qualities. Not so when cells antagonize vital causes. When cells are pitted against cells they may be despoiled of their highest quality, as, in the infectious granulomata, they have parted with formative activity. In short, the knowledge that pertains to the presence of a vital irritant, epitomizes all that has been taught of infective disorders. The symptomatology and pathology of this class of diseases are but the life history, the play of cell activities, metabolisms, and catalysis of antagonizing organisms; as likewise the knowledge pertaining to the presence of a foreign body or physical irritant, is the knowledge, in brief, of fibrinosis; in general, of that entire class of disorders known as interstitial inflammation. A persistent irritant injury, with its attendant concentration of leucocytes; their inevitable development and ultimate transformation; the history of the capsulation of a foreign body, whether it be animate or inanimate, is the history of cirrhosis of the liver; fibrosis of the lung; morbus Brightii; atrophy of the heart; atrophy of voluntary muscles in general; sclerosis of the brain and bone; in short, diffuse capsulation. Some disseminated irritant, say alcohol, determines a sclerosis of the liver; and how? Every particle of alcohol being a foreign particle, having its capsule, it follows that capsulation is as uniformly distributed as the cause. An artisan inhales fine particles of steel or other foreign material, and fibrinosis of the lung is the consequence. The irritants of gout and rheumatism are lodged in the kidney; the interstitial tissue of the organ increases, and in the end strangu-

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lates the tubules and Malpighian bodies; results in shrinking and total disorganization of the organ, constituting Bright's disease. Like changes occur in the heart coincident with the development of the interstitial fibrous tissue, with atrophy of the muscular substance, substituting a fibrous induration for its normal structure. A similar change in the voluntary muscles occurs in the curious disease known as pseudo-hypertrophic paralysis, chiefly afflicting children. The connective tissue between the muscular fibres increases so much that the muscles affected may exceed their normal size three times. Later, however, the new tissue shrinks, and the contractile material of the muscles is spoiled. The condition of sclerosis in bones corresponds to cirrhosis of the liver, and Bright's disease of the kidney. In the nerve centres the interstitial tissue—neuroglia—takes on the same chronic overgrowth, strangling the nerve strands and cells, giving rise to the most singular and complicated nervous phenomena. The changes thus induced are recognized by the general term sclerosis. If it involves the fasciculæ of Burdack and the columns of Goll, locomotor ataxia results; if the medulla, bulbar paralysis, etc.

We have purposely avoided reference to diathesis, as also to the precise neurological relationship of cells, not because we deny their influence, but because too little is definitely known. On the contrary, the behavior of cells relatively to irritants is well understood. The presence of a foreign body is at once and directly resisted by the leucocytes, a zone of inflammation, its destruction, transportation or encapsulation, even parasites which resist the death-dealing assaults of the leucocytes, are at least imprisoned in cases of fibrous tissue.

There yet remains for our consideration a mysterious possibility relating to cell life of great practical moment, viz., that of entering upon a life of independence, separating from the central nervous system "head-quarters," disregarding the "field telegraph," oblivious to the morning "drum-beat," and wholly ignoring the restraining and directing influence of environing structures. We have learned that however much irritation may affect the vital qualities of cells, their fidelity is always preserved, there being no sign of disaffection, the army ever intact, the fealty of the soldiers supreme. Physical causes—traumatism—may crush or impair the tissues, but the cells come to the rescue with all vigor and directness. The prolonged presence of bacteria may impair the forces of the cells, enfeeble and extinguish them, but as long as life lasts their efforts are in harmony with the purposes of the organism. Thus it appears that alienation is not possible through the agency of irritation, however intensified, modified, or prolonged. The question constantly obtrudes, Is alienation possible to a mature element, to an element that has assimilated itself physiologically as well as anatomically, with the surrounding tissues, taking part in its functions, concurring and coöperating in all the processes of the economy? This question seems to have confronted Cohnheim, when his ingenuity suggested the embryonal hypothesis, viz., that the tumor germ was congenital; that there were in the natural body embryonal elements and tissues not utilized in the elaboration of the normal structures, latent, embryonal rudiments; small, embryonal cells so diminutive as to elude observation, inactive, perhaps, till some exciting cause awakens activity. Is not an embryonic element in a mature organism an alien? Is it not already an independent element? Are not patches in the skin, pigmented moles, islands of cartilage in mature bone, congenital angioma, etc., independent structures, already tumor-germs, congenital rudiments of tumors? Accept the hypothesis of the great German pathologist, and the problem of tumor etiology is almost solved; it remains only to find the exciting cause: the predisposition is inherited: irritation, simple or otherwise, may be nearly allied to the awakening impulse. The difficulty is to reconcile cell-antagonism with the proposition. This doctrine includes the idea that all discordant bodies are treated as intruders, either ingested, transported, or covered up. We can conceive the possibility of the existence of an inoffensive tissue or element, one that simply draws its nourishment from adjacent tissue, without any serious disturbance of their normal metabolism. We would gladly adopt the theory of Cohnheim, which ascribes the origin of tumors, neoplasms, to persistent germinal rudiments. Certainly it has much to recommend it. Countless latent embryonal structures, relatively independent, are tolerated by the organism, remaining inactive till favored by some concurrent event, the nature of which is incomprehensible, when they may grow according to their bent. Is it not quite as possible that there may be similar relatively independent elements, ready when stimulated to multiply independently? Congenital angiomata often grow without definite limit; pigmented moles—black, slightly raised patches in the skin—with which all are familiar, are composed of tissue exactly resembling sarcoma; always suspicious because of their disposition to proliferate independently. It is most difficult to believe in the infidelity of covenant cells, of sundering the compact which unifies the organism. Emancipation seems almost out of the question. We must not only believe that dependent benignant elements become independent, but indifferent, vicious, impetive. In short, the elements of the host become the elements of a parasite—a parasite so vigorous, corrupt, and wicked as to destroy its source.

The painful part of the retrospect of a year is that which recalls those who have been taken from us. The past year has had a very special grief for our Association in the death of one of our ex-Presidents, Dr. William Owen Baldwin, who died at his residence, and the place of his birth, Montgomery, Alabama, May 30, 1886. He was among the early members of the American Medical Association, and its President in 1869, presiding at New Orleans. His address on that occasion abounded in Christian and patriotic sentiments, eminently befitting the good and great physician. The committee charged with the organization of the Ninth International Medical Congress, which meets at Washington City, this year, had named him as one of its Vice-Presidents. Dr. Baldwin was remarkable for his culture, the eloquence of his speech, and the beauty of his diction, and will be remembered as an imposing figure in the history of this great Association.

I need scarcely remind you, gentlemen, that we shall have, after a few weeks, assembled in our midst, the medical men of all nations. Soon we shall extend the hand of friendship to those with whom we have hereto-

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fore been united in interest and sympathy in the cause of science. We know that everything is being made ready, and that success is assured. Again, you will join me, I know, in the declaration that a hearty American welcome awaits their advent, and that the Ninth Meeting of the great Congress will be memorable in the history of its organization.

ORIGINAL ARTICLES.

THE INFLUENCE OF BEER ON SALIVARY AND GASTRIC DIGESTION.

BY H. A. HARE, M.D. (UNIV. OF PA.),
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THE physician is frequently puzzled when prescribing for a convalescent, as to which alcoholic beverage of a mild and pleasant character he can recommend with the least fear of "upsetting" the stomach. The writer has, therefore, attempted to decide this question, and the results are tabulated further on.

Before passing to a direct consideration of the methods employed and the results obtained, it is necessary that a few physiological and therapeutical points be brought forward. Everyone knows that alcohol retards digestion in the test-tube, but aids it in the stomach; and while these facts seem somewhat paradoxical, they are, in reality, perfectly logical, for the following reasons:

In the test-tube we have a given quantity of digestive fluid on which the alcohol may act, and we cannot have any increase in the quantity of that fluid, because it is surrounded by glass walls. In the stomach the alcohol acts quite as much on the digestive ferment as it does in the test-tube, but it also, by its presence in that viscus, excites the gastric glands to such an extent that an excess of gastric juice is secreted sufficient to counterbalance any anti-digestive influences. In other words, the action of the spirit on the living tissue is greater than its action on the digestive ferments.

Theoretically, alcohol should never be used in indigestion or in conditions of gastric weakness; practically, every physician of experience or education gives alcohol under just these circumstances, and, very properly too, gives the stronger alcoholic preparations instead of the weaker. In typhoid fever we give brandy or whiskey in the first stages, almost solely for the purpose of increasing digestion.

It is, therefore, clear that any experiments made by means of artificial digestion do not give us results which can be looked upon as comparable to true digestion. At the same time it is a fair supposition that beer which retards digestion the least in the test-tube, will also retard it the least in the stomach, unless it can be proven that it contains scarcely anything but water, in which case the condition of affairs is exactly reversed.

It is also known by those interested in such matters in the profession, that beer aids digestion but little or at all by means of its alcohol, since that constituent is present in so diluted a form and in such small quantity that it can neither aid digestion to any extent by acting on the coats of the stomach nor retard it by influencing the digestive fluid. It should not be forgotten that while all alcoholic fluids theoretically retard gastric digestion, that beer does so much less than brandy or whiskey owing to its small amount of alcohol, and while, as has already been shown, this fact rather obtains against its practical use, that this is overcome by the carbonic acid and bitter principles of the beer, which stimulate, excite, and act as bitter tonics on the gastric glands.

Beers to be wholesome should, therefore, contain carbonic acid and bitter principles to a fair degree, the alcohol taking a subservient and almost useless *rôle* so far as digestion is concerned.

So far in this paper the influence of alcoholic beverages on gastric digestion has received our entire attention, simply because it is by far the most important part of the subject.

In some recent experiments made by Duggan, of Baltimore[1], it was decided that alcohol in all its forms very markedly retards the conversion of starch by diastase; and, although it is a general impression that beer contains enough diastatic power to aid, at least, somewhat in the reduction of starch, it would seem probable that any such action would be set aside by the alcohol present, and the results of my experiments support this view.

The question of the influence of beer on salivary digestion is, however, of so little importance that it is hardly to be considered, so that, without further comment the method of these experiments will be described.

In the experiments on gastric digestion thirty minims of a standard solution containing forty grains of Fairchild's scale pepsin, and ten minims of hydrochloric acid to the ounce, were placed in each test-tube, which was immersed in a water-bath at 110° F.[2] To this were added thirty minims of beer, and finally one grain of hard-boiled egg albumen, care being taken that each piece of albumen should be of the same shape as the others, in order that an equal amount of surface might be exposed to the digestive fluid in every instance. In order that the dilution might be equal in both the control and beer tubes, thirty minims of water were added to the former.

Twenty-four experiments were made with each beer, and the space of time elapsing between entire digestion in the control and beer tubes carefully noted in every case. The figures in the table, therefore, show the average retardation of digestion as it occurred in twenty-four experiments, and accurately represent the status of each brand examined.

The tests performed with salivary digestion were made in much the same manner as those on the gastric, ten minims of a standard solution of boiled starch being used in every test along with thirty minims of saliva and an equal quantity of beer. In

[1] Studies from the Biological Laboratory of Johns Hopkins University, vol. iii. No 9, February, 1887.

[2] The writer is perfectly aware that this amount of pepsin is many times as great as it need be, but as the object was not to test the amount of pepsin necessary, but the action of the beer, and as time was of some moment, this strength was arbitrarily employed. It should also be remembered that the addition of thirty minims of beer dilutes the digestive fluid *one-half*, and it was for this reason that ten minims of acid to the ounce were used instead of the ordinary quantity, viz., five minims.

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the control tubes water was introduced in place of the beer, as it was in the former experiments. The method of determining that all the starch was digested was the iodine test, the reagents used for the qualitative estimation of glucose being valueless, owing to the fact that they do not prove entire conversion of the starch, and also because of the presence of glucose already free in the beer itself. The starch in any one tube was not considered converted until there was no longer any blue color produced when iodine was added.

To sum up the results of these experiments, we find that the beers examined varied in their action as much as fifty-nine minutes, and that while most beers do not retard digestion in all probability in the stomach, that others, such as those mentioned in the first part of the table, aid digestion very materially. Thus, in the case of the Bergner & Engel Brewing Co's Tannhäuser, it will be noted that even in the test-tube the average delay in gastric digestion equalled but one minute and thirty seconds.

While we can use beer as a tonic and stimulant to digestion, we cannot regard it as a beverage possessing any real nutritive value, since its chief nourishing constituent is glucose, which is, however, in very small amount, the greater part of it having been transformed in the fermentation into alcohol and carbonic acid.

If, however, we use the term "beer" as do our English cousins, then we include a large number of the "heavier" liquids of this class, which, of course, contain a larger proportion of nutritive matter.

TABLE SHOWING THE INFLUENCE OF BEER ON SALIVARY DIGESTION.

Variety of beer.	Brewer.	City.	Average retardation of digestion.
Hathaway,	V. Hathaway & Co.	Boston,	1 min. 30 sec.
Champagne Lager Beer,	H. Clausen & Son	New York,	5 "
Tannhäuser,	Bergner & Engel Brewing Co.	Philadelphia,	6 " 1 "
Budweiss,	.....	....	7 " 24 "
Eimbecker,	Bergner & Engel Brewing Co.	Philadelphia,	8 "
Bergdoll,	L. Bergdoll Brewing Co.	"	8 " 12 "
Best,	Phil. Best Brewing Co.	Milwaukee,	9 " 18 "
Kaiser,	.....	Bremen,	10 " 42 "
Pilsener,	Bergner & Engel Brewing Co.	Philadelphia,	11 " 15 "
Niagara,	Niagara Falls Brewing Co.	Niagara Falls,	11 " 32 "
Continental,	Cont. B. Co.,	Philadelphia,	12 " 8 "
Royal,	H. Clausen & Son	New York,	12 " 12 "
Anheuser-Busch B. A.	Anheuser-Busch Br. Association,	St. Louis,	13 "
Ehret's N. Y Lager Beer,	George Ehret.	New York,	14 "
Rochester,	Bartholomay Br. Co.	Rochester,	18 " 30 "
Schlitz, Export Beer,	Jos. Schlitz Brewing Co.	Milwaukee,	19 " 18 "
Betz,	J. F. Betz & Son,	Philadelphia,	21 " 11 "

TABLE SHOWING THE INFLUENCE OF BEER ON GASTRIC DIGESTION.

Variety of beer.	Brewer.	City.	Average retardation of digestion.
Tannhäuser,	Bergner & Engel Brewing Co.	Philadelphia,	1 m. 30 s.
Pilsener,	" "	"	13 " 30"
Eimbecker,	" "	"	23 " 27"
Anheuser-Busch B. A.	Anheuser-Busch Br. Association,	St. Louis,	25 " 8"
Rochester,	Bartholomay Br. Co.	Rochester,	36 "
Continental,	Cont. Br. Co.	Philadelphia,	36 " 20"
Betz,	J. F. Betz & Son,	"	1 hour.
Kaiser,	.....	Bremen,	1 " 13 " 30"
Budweiss,	.....	.....	1 " 18 " 15"
Niagara.	Niagara Falls Brewing Co.	Niagara Falls,	1 " 20 " 6"
Royal,	H. Clausen & Son	New York,	1 " 22
Best Export	Phil. Best Brewing Co.	Milwaukee,	1 " 22 " 5"
Champagne Lager Beer,	H. Clausen & Son	New York,	1 " 24 " 22"
Ehret's N. Y. Lager Beer,	George Ehret,	" "	1 " 28 " 23 "
Bergdoll,	L. Bergdoll Brewing Co.	Philadelphia.	1 " 51 " 21"
Hathaway,	V. Hathaway & Co.	Boston,	1 " 52 " 20"
Schlitz Export Beer,	Jos. Schlitz Brewing Co.	Milwaukee,	1 " 55 " 12"

EXSECTION OF THE KNEE-JOINT FOR TUBERCULOSIS.[1]

BY ARPAD G. GERSTER, M.D.,
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WHITE swelling of the knee-joint in adults of the laboring class can, for various external reasons, rarely be treated by orthopædic measures. In children a rational mechanical and general treatment will often reward the patience and skill of the physician by excellent results. Exsection of the knee-joint in infants is to be avoided as long as possible, on account of the great shortening that is caused by the removal of the epiphysis adjoining the knee, on which depends the growth of the thigh and tibia. In adults exsection is the shortest and safest way of eliminating tedious morbid processes and substituting firm ankylosis for a useless joint.

Arthrectomy, or exsection of the capsular ligament alone, as suggested by Volkmann, has not been attended with good success in the experience of the writer. Two cases, one in an adult, the other in a child, resulted in relapse of the tubercular affection, although great care was taken in removing the entire capsule. A third case was permanently cured. The following are brief synopses of these cases:

CASE I.—S. L., metal worker, æt. twenty-seven. On February 28, 1882, arthrectomy was

[1] Read at a meeting of the New York Surgical Society, May 25, 1887.

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performed, the patella being removed for fungous arthritis of the knee-joint. Primary union occurred. On March 22d the disease recurred in the cicatrix, and gradually involved the articular surface of the femur and tibia. Amputation was performed by Dr. J. Adler.

CASE II.—Fred. O., æt. five and one-half. Tubercular arthritis of the knee-joint. On January 26, 1887, arthrectomy was performed at the German Hospital. On March 22d the entire cavity was opened and scraped because of recurrence of the disease. At the present date the boy is still under treatment.

CASE III.—George K., butcher, æt. twenty-six. On July 6, 1882, arthrectomy was performed at the German Hospital; a carious patella being removed. On November 5th he was discharged cured, with slight mobility of the joint.

In children exsection should be made only under very urgent, especially vital indications, and should be strictly limited to the removal of diseased parts. By following Schede's plan of dressing the wound, the hollow spaces remaining between the opposite joint-surfaces will be filled by an organizing blood clot, and firm union without suppuration may be obtained.

CASE IV.—Eva G., æt. eight. Osseous tuberculosis of the knee-joint, with a sequestrum in the external condyle; granular osteitis of internal condyle, and multiple cheesy deposits in the thickened capsule; subluxation backward of the tibia, with rectangular contraction. On August 12, 1886, partial exsection of the knee-joint was performed at Mt. Sinai Hospital. After the removal of the sequestrum a deep recess was left behind the intercondylar notch. The patella and the entire capsule were removed; the hamstring tendons were divided to prevent recontraction. The tibia was pared superficially, and the bones were held in apposition by a nail driven diagonally through the femur and tibia. A plaster-of-Paris bandage was applied over Schede's dressing. The patient had an attack of erysipelas. By reason of these complications healing was delayed.

On February 27, 1887, the patient was discharged cured, with firm ankylosis.

Total exsection of the knee-joint is usually performed by the writer in the following manner: After careful scrubbing and disinfection of the region of the knee, the foot, the leg, and the thigh of the diseased limb are enveloped in clean towels, wrung out in corrosive sublimate solution. The limb is elevated vertically for five minutes, in order to deplete its vessels, and the constricting band is applied high up on the thigh. The knee is flexed, and an incision, commencing at the middle of one condyle of the femur and extending in a semicircular line *above* the patella to the middle of the other condyle, is carried into the joint. The transverse incision above the patella, proposed by Eugene Hahn, of Berlin, has many advantages over the incision made below the patella. The chief one is the free access which it affords to the bursa of the quadriceps, which must be carefully exsected along with the capsule.

The crucial ligaments are divided close to their attachment to the femur, and the patella, the semilunar cartilages, and the entire capsule, together with the bursa of the quadriceps, are exsected with mouse-tooth forceps and curved scissors. Care must be taken not to overlook some small bursæ situated behind the head of the tibia, which regularly communicate with the interior of the joint. The condyles of the femur are sawed off, the plane of section corresponding to the transverse diameter of the epiphysis of the femur. Disregard of this rule will lead to ankylosis in such a position that the patient will be bow-legged. The articular surface of the tibia is sawn at a right angle to the long axis of this bone. All visible orifices of vessels are secured by ligatures; they can be recognized by compressing the vicinity of the wound with both hands.

If the transverse incision was not made long enough to permit of an easy arrangement of the drainage tubes in the angle of the wound, it should be sufficiently lengthened. The inner ends of the tubes should reach into the popliteal space, just behind the sawn surfaces, and the tubes must not be compressed and occluded by the tension of the soft parts surrounding them. The limb is placed upon a long cushion covered with a clean towel wrung out of corrosive sublimate solution, and, while the sawn surfaces are held in exact apposition, from two to four long steel nails, previously well disinfected by heating in an alcohol flame, are driven diagonally through the femur and tibia, so as to lock the bones firmly in the desired position. The cutaneous incision is united by a sufficient number of catgut sutures. The limb is raised by the foot from the cushion, which is then removed. Strips of disinfected rubber tissue are slipped under the safety-pins securing the ends of the trimmed drainage tubes, and an oblong compress of iodoform gauze is laid over the entire line of union. A suitable number of sublimated gauze compresses are arranged around the knee-joint, and two short lateral splints of veneering, or thin board, are firmly bandaged on, to serve as a deep support. Over these is placed an ample external dressing of corrosive sublimate gauze, also firmly secured by a gauze bandage. The towels are removed, and the uncovered parts of the limb are enveloped in a layer of borated cotton, so as to equalize its outline. Two long lateral pasteboard splints, secured by muslin or crinoline, complete the dressing for children or adolescents.

In adults, the limbs being stouter, are better secured by a firm circular plaster-of-Paris splint. The limb is elevated vertically, and the constricting rubber band is removed; the return of the circulation is attested by the pink color of the toes. As soon as these turn pale, the extremity can be brought to the horizontal position.

If asepticism was well maintained the operation will be followed by slight aseptic fever, and no severe pain. The dressings should remain undisturbed for thirty days, so as to afford a good chance for bony union. After this period the splints and dressings can be removed, and the nails and drainage tube can be withdrawn. The remaining sinuses are dressed lightly, the limb is encased in a silicate of soda splint, and the patient is ordered to walk

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about on crutches, whether osseous union is present or not. Gradually the crutches are dispensed with, and the patients generally learn to walk very well on an elevated sole, which compensates for the shortening.

Of twelve cases of total exsection performed by the writer for tuberculosis, eleven recovered, and one died of meningeal tuberculosis. The history of the fatal case was as follows:

CASE V.—Fred. F., æt. seven. Osseous tuberculosis after arthrectomy performed by Dr. F. Lange, in June, 1885. On March 4, 1884, total exsection was done at the German Hospital. The operation revealed two periarticular abscesses, and five cheesy foci in the tibia and femur. Suppuration of the wound occurred. On March 10th an abscess on the outer aspect of the knee was incised. On April 23d separation of the epiphysis of the tibia took place; the separated epiphysis was firmly united to the femur. Symptoms of meningeal tuberculosis developed, to which the patient succumbed, May 31st.

In one of the remaining eleven cases amputation of the thigh became necessary on account of suppuration. The following is a brief synopsis of this case:

CASE VI.—H. D., professional athlete, æt. thirty. Extensive destruction of the right knee-joint by tuberculosis, complicated with pyogenic infection. The knee, leg, and thigh contained a large number of abscesses; there was profuse secretion from seven fistulæ. The case was not suitable for exsection and amputation was advised; but, at the patient's earnest request that an attempt should be made to save his limb, total exsection was done at the German Hospital, on February 14, 1884. As suppuration was expected, the extremity was fixed to an interrupted dorsal suspension splint, made of hoop iron, by plaster bandages. Profuse suppuration followed, attended with evident prostration. On April 19th the thigh was amputated. The wound healed by granulation, and in June the patient was discharged cured.

Ten cases were cured, in which the limb was preserved; in nine of these firm, bony ankylosis was secured. In one there was ligamentous union, viz.:

CASE VII.—Nicolas G., carpenter, æt. fifty-four, synovial tuberculosis, with high temperature and emaciation, following slight traumatism. Contraction of the knee at an acute angle, with constant violent pain. On February 19, 1886, a puncture was made at the German Hospital, a small quantity of turbid, bloody serum being withdrawn. Under an anæsthetic the limb was straightened, and the joint was incised, irrigated, and drained. The fever at once disappeared, but flocculent pus commenced to flow from the tube, confirming the assumption that tuberculosis was present. In view of the patient's age, and his wretched general condition, which was due partly to disease and partly to chronic alcoholism, amputation was thought to be advisable. The plan of operation was changed at the operating table, and total exsection of the knee-joint was done. Hemorrhagic synovitis, and a large cheesy deposit in the bursa of the quadriceps, were found. Five nails were introduced, and an aseptic dressing was applied, with pasteboard splints. Temporary compression with Martin's bandage was employed, in order to control the secondary oozing. The dressing was changed on the twenty-second day. Four nails were found to be loose, and were withdrawn. On May 8th, the drainage tracks were scraped, and the fifth nail was removed. Ligamentous union had taken place. A plaster-of-Paris splint was applied. By June 12th the sinuses had healed, and the patient was walking without a stick or crutches, wearing a light silicate-of-soda splint, though union of the bones was not perfect.

The following are brief notes of the other nine cases:

CASE VIII.—Willie B., æt. three and a half. Osseous tuberculosis with fistulæ. Total exsection was performed, February 2, 1879. April 2d, patient was discharged, cured.

CASE IX.—Charles H., æt. twelve. Osseous tuberculosis, with fistulæ; contracture, and subluxation backward. Total exsection, June 13, 1884, at German Hospital. Hahn's incision was made, two nails were introduced, and a plaster-of-Paris splint applied. Some fever, and deep-seated œdema of the region of the knee followed. The sawn surfaces and the flesh wound united by first intention. The nails being withdrawn on the twelfth day, some pus exuded from their tracks, showing that they had apparently not been well disinfected. Several revisions were required on account of the development of unhealthy granulations in the drainage holes. On February 4, 1884, the patient was discharged with firm ankylosis, and no fistulæ.

CASE X.—S. B., æt. nine. Osseous tuberculosis, several fistulæ, subluxation. August 26, 1885, total exsection at Mount Sinai Hospital. Nails were introduced, and a plaster-of-Paris dressing applied. September 25th the dressing was changed, and the nails and drainage tubes were withdrawn; firm ankylosis. October 10th, patient discharged, cured.

CASE XI.—Leonard P., waiter, æt. nineteen. Synovial tuberculosis, no fistulæ. August 27, 1885, total exsection at the German Hospital. September 27th, plaster-of-Paris splint, dressings, drainage tubes, and nails removed. October 9th, sinuses healed. October 19, discharged cured, with firm ankylosis.

CASE XII.—Bertha D., æt. twelve. Synovial tuberculosis of five weeks' standing. Continuous high fever, with rapid emaciation. A puncture yielded a small amount of bloody serum. January 21, 1886, total exsection at Mt. Sinai Hospital. The capsule was found studded with innumerable miliary tubercles. The fever disappeared immediately after the operation. February 20th, the plaster splint was renewed, and the wound was found to have healed by first intention. March 10th, the patient was discharged cured, with firm ankylosis.

CASE XIII.—Lizzie B., æt. twenty. Osseous tuberculosis of eighteen years' standing; rectangular contraction with subluxation backward. February 12, 1886, total exsection at the German Hospital. March 10th, change of dressings, three nails and the drainage tubes being removed; primary union.

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April 4th, patient complained of a good deal of pain in walking. A hard body could be felt under the skin on the outer aspect of the tibia. An incision exposed the head of the fourth nail, which had not been found at the first change of dressings. It was withdrawn with some force, a little blood exuding from its track. May 9th, patient discharged cured.

CASE XIV.—Anna L., æt. twenty-two. Synovial tuberculosis with ulceration of the articular surfaces of both the femur and the tibia. May 10, 1886, total exsection at the German Hospital. June 12th, first change of dressings. Primary union of the soft parts; delayed union of the bones. August 1st, discharged cured, with firm ankylosis.

CASE XV.—Synovial tuberculosis, with caseous deposits in several recesses of the capsule, notably around and behind the crucial ligaments. Caries of the articular surfaces. May 18, 1886, total exsection at the German Hospital, the operation being followed by slight fever. Dressings removed May 26th, showing marginal slough of the upper edge of the skin-wound. June 17th, nails removed. Firm ankylosis. July 26th, patient discharged cured.

CASE XVI.—Emma F., æt. twenty-seven. Synovial tuberculosis, with caries of the articular surfaces. April 18, 1887, total exsection. April 22d, considerable amount of secondary oozing, necessitating a change of the external dressings and plaster splint. There was some fever. May 23d, dressing changed; primary union, with firm ankylosis. The tubes and three nails were removed; a fourth nail could not be found. To prevent the disagreeable necessity of cutting down in search of a nail buried in the tissues, Dr. F. Lange's suggestion of fastening a silk ligature to the head of each nail before driving it in, seems to be very appropriate. June 4th, an incision was made over the seat of the fourth nail, which had healed in completely, and it was withdrawn.

CHLOROFORM AND FORCEPS.

BY J. E. FREE, M.D.,
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OPINION is, perhaps, equally divided upon the question of the applicability of chloroform. It is customary for the advocates of either side of a controversy to publish remarkable successes when reached through the medium of their favorite drugs and methods, but the humiliating disappointments are buried in oblivion; thus sometimes a conclusion, which is apparently sustained in current literature, receives a rude shock in actual practice.

Up to within a few days I have been a firm believer in the value of anæsthetics in parturition. They have frequently helped me where there was severe suffering to be relieved, and heretofore have never increased the patient's risks.

But my series of successful cases has been broken by a most discouraging result. My father, who has had a wide experience, is a determined opponent of what I consider scientific aids to delivery. He has been remarkably fortunate without them, and consequently insists upon their inutility.

Recently we had an opportunity of bringing the point at issue to a trial. Mrs. F., a petite blonde, well developed and in excellent health, was confined on April 22, 1887. I say she was in good health, but previously, at the time of fecundation she had serious trouble with her stomach, and for the first three months of pregnancy was in bed. All of the usual remedies for this condition were tried without avail, and in despair she swallowed a teaspoonful of oil of rue, hoping thereby to induce an abortion. The result was sharp gastro-enteritis, which was relieved with orange juice. After taking the rue the appetite for the oranges developed, and in two weeks she consumed a whole box of Florida oranges.

The *modus medendi* in this instance is strikingly obscure; there was a substitution of one morbid process for another when the rue was swallowed, but when it subsided the reflex influence ought to have again appeared.

Labor pains were first felt at 3 A.M., they were far apart and slight for several hours; then they suddenly increased in frequency and force, and at 10 A.M. the head passed the upper strait and seemed about to engage in the pelvis. But no progress was made. The amniotic fluid was discharged, strong expulsive pains came on, and still the head lingered. The woman was restless and wilful, and would not make the proper effort to help herself. Therefore, being an advocate of chloroform in just such conditions, I thought the case a proper one for its use.

My father, who was called as consultant, did not favor any interference, and gave it as his opinion that the labor would terminate favorably—sometime, but if chloroform was used we would have post-partum hemorrhage, and with forceps we would most probably have a ruptured perineum. If he had not condemned anæsthetics and instruments on general principles, I would have been disposed to heed his advice. Unfortunately for my theory, I insisted upon terminating the labor with all possible speed.

The chloroform caused the pains to relax, which was what was prognosticated of it. But having the forceps in position the desire to terminate the delivery was too strong to be resisted, and I made traction on the head. It yielded gradually, and when the perineum began to stretch I tried to slip the forceps off, but only had time to get one blade away before the head came out with a rush, rupturing the perineum through the sphincter ani.

The child was cyanosed, and died the following evening.

The placenta came away with the child, and for a few minutes we devoted our attention to the latter. All the methods known to us for the resuscitation of asphyxiated children were tried, especially those recommended recently by Drs. Blackwell and Smith.

The mother bled rapidly, and before we could control the hemorrhage with ergot, ice, and pressure, the bedclothes and mattress were saturated and the blood was running to the floor.

After the flooding was stopped an immediate operation upon the perineum was proposed with cocaine as an anæsthetic to the surface, but it proved unsatisfactory, and chloroform was again administered.

To-day, May 9, 1887, our patient is doing re-

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markably well, but the case has taught me a severe lesson. The result was most disastrous when it is remembered that it was made the test for the advisability of giving chloroform and using the forceps in a protracted labor.

MEDICAL PROGRESS.

ANTISEPSIS FOR THE NEWBORN.—MILLER, at the Second Congress of Russian Physicians, stated that the newborn become ill with septicæmia and pyæmia very easily: the ground for the frequency of such illness is neglect of antiseptic precautions. In the asylum at Moscow 700 to 800 newborn perish each year from pyæmia.

These cases may be divided in three classes:

1. In one class the infection appeared in the first three days of life when the cord is still fresh or is just beginning to decompose. In such cases the infection must have occurred during intrauterine life. The post-mortem examination in such cases reveals extensive disintegration of the blood without marked lesion of any organ.

2. In these cases pyæmia appeared on the fourth or fifth day of life, simultaneous with the separation of the cord. Post-mortem appearances are purulent and fatty degeneration of different organs, inflammation of the peritoneum and pleura, and ulcerative endocarditis. This infection has its source in the umbilicus.

3. Cases of late pyæmia. The cause of these infections is found in the bad condition of the foundlings' asylums, and this infection is a frequent complication of inflammatory processes. Post-mortem examination in these cases reveals the umbilicus healthy and the exciting cause is found in stomatitis, intertrigo, and anal fissures following rectal prolapse.

Children suffering from *blennorrhœa neonatorum* frequently develop inflammation about the umbilicus; such children should be treated with especial care.

The writer recommends Ringer's method of treating the cord, drying, powdering with boric acid and wrapping in salicylated cotton.

When suppuration occurs carbolic lotions and iodoform should be used. Other diseases likely to cause pyæmic infection must be treated with especial precautions.—*Centralblatt für Kinderheilkunde*, May 2, 1887.

ANTIPYRIN AS AN ANALGESIC.—GERMAIN SÉE finds that antipyrin allays pain by suppressing sensibility and reflex excitability without disturbing the rhythm of the heart or the force of the circulation.—*Gazette Hebdomadaire*, April 22, 1887.

TREATMENT OF SERPIGINOUS ULCERS OF THE CORNEA. — DEHENNE reports the following treatment in *L'Union Médicale* of May 7, 1887:

1. Incise the superior and inferior lachrymal puncta, and irrigate the lachrymal duct freely with an antiseptic solution (boric acid 4 to 100).

2. Irrigate the conjunctival sacs with sublimate solution 1 to 2000.

3. Cauterize the ulcerated surface with a fine thermocautery point at white heat.

4. If there be pus in the anterior chamber, perforate the cornea with the same point and evacuate the pus.

5. Drop into the diseased eye four times daily five or six drops of a neutral solution of sulphate of eserine, 1 to 200.

TREATMENT OF DIARRHŒA BY IODOFORM AND CHARCOAL.—PICCHINI treated eight cases of diarrhœa, with symptoms of fermentation, with the following:

Iodoform	grs. 9.
Ether	℥ 3ß.
Vegetable charcoal, finely powdered	℥ 3ß.
Glycerine, ... ad.	℥ 12.

The iodoform must be dissolved in the ether, and the powdered charcoal thoroughly mixed. After the ether has evaporated the glycerine should be added. To take in twenty-four hours, by teaspoonful or tablespoonful, suspended in a glass of water.—*Journal de Médecine*, May 1, 1887.

•THE STRING DRAIN, A SUPPLEMENT TO THE ORDINARY DRAINAGE TUBE.—DR. JENKINS proposes the following expedient in *The Annals of Surgery* for May, 1887:

The method proposed is a simple adjunct to the drainage tube, and is, in so far as the writer is aware, novel. The liberty is taken of calling it "the *string drain*."

It consists in introducing one end of 30 or 40 feet of rough string, highly hygroscopic, and completely aseptic, through the usual "Chassaignac drainage tube," so that, when the last is placed in the wound, the string may be drawn through, from time to time, as will be explained hereafter.

The string may be of cotton, linen, or wool, that has been freed of fat and disinfected, for which purpose it is recommended that it be treated after the manner that v. Bergmann prepares his gauze—by immersing the absorptive string for one hour in the following: Sublimate 1, glycerine 50, alcohol 100, water 150, warmed, to be dried, and kept in hermetically sealed glass jars; it will then hold ⅓ per cent. sublimate, and is very absorbent. The end of the string being passed into the tube, and the tube placed in the wound, and it closed, then the strings and aperture or apertures of tube are covered by the usual protective of "gutta-percha paper," or "Lister's oiled silk," to hinder evaporation or gluing of the string. The string is now tried, to see that it draws freely, and is so placed that it lies along the line of least resistance, and closely applies to the body's surface; over the gutta-percha paper and string, the gauze and cotton, etc., are to be placed. The coil of the string may be kept in an antiseptic magazine, such as a glass bottle, which can be included in the bandage or left out, as desired; in the last case, when not being used, the bottle should be tightly stoppered, and covered by an antiseptic bandage. The draw-end should be left out and can be drawn upon from time to time, as may be necessary, until it comes free from secretion.

The soiled end of the string can then be cut away, and it and the bandage, at its emergence, disinfected with a saturated solution of iodoform in ether.

The other end should be protected most rigidly against infection, as mentioned above.

Or the string might be placed in a coil in the wound

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itself, in form of tampon, and passed out through a drainage tube.

This might apply in wounds such as would be left after the removal of tumors (as lipoma), or might thus be used with Martin's drainage tube in "Douglas's fossa."

The process advocated is recommended during the first forty-eight hours, when the wound is pouring out a large quantity of serum, before granulation is established on the wound's walls, which follows especially operations in which "carbol" or other irritants are extensively employed, and in this time the tube is most likely to be stopped by coagula.

ARSENIATE OF STRYCHNINE AND PEPSINE.—AURILLAC has found the following useful in dilatation of the stomach and constipation:

Pepsine	grs. 1½.
Ext. of malt	♏ 2.
Arseniate of strychnine . .	gr. $\frac{1}{180}$.

For four capsules or wafers.—*Les Nouveaux Remèdes*, May 8, 1887.

THE TREATMENT OF PHTHISIS.—DETTWEILER, at the recent Congress for Internal Medicine, read a paper on this subject, whose conclusions are as follows:

1. There is no specific treatment of phthisis.

2. The essence of treatment consists in regulating tissue changes: best accomplished by fresh air, the cultivation of bodily endurance, nourishment, and exercise.

3. A climate free from phthisis does not exist; that climate is best which best permits the treatment described.

4. Phthisis is curable; the effort must be made to cure every case, especially in its early stages.

5. These points are best gained by treating the phthisical in buildings and localities especially fitted for them. —*Berliner medicinische Wochenschrift*, April 27, 1887.

THE TREATMENT OF WOUNDS.—TREVES, of London, detailed, at a recent meeting of the Harveian Society, his method as follows:

Dealing first with wounds of the lower extremities, he dwelt on the greater mortality attending these injuries, and the reasons assigned for healing taking place more slowly and imperfectly. In his opinion bad ventilation is one cause; the atmosphere under the bed-clothes is close and stuffy, if not positively fetid; the limb may be wrapped up in cotton-wool, but ought to be freely exposed to the air. Again, in wounds about the toes and feet, the large sheaths of the tendons are opened; no care is taken to close them, and they become practically open tubes, in which pus accumulates. In removal of the toes, healing is often prevented by sloughing of the flaps; this is due to the operator neglecting to respect the integrity of the artery which supplies blood to the flap. In cases of fractured patella no treatment is better than the use of Malgaigne's hooks, provided these are scientifically applied; the author described his method of applying them. Mr. Treves protested against the use of plaster in putting up compound fractures of the lower limb; his plan is always to fix these fractures by the use of straps and buckles, to expose the limb freely to the air, and to keep the wound constantly powdered with iodoform until a firm scab formed. While dealing with wounds of joints, the author remarked on the great value of irrigation, and gave notes of a case in which amputation of the lower limb for desperate disease of the knee-joint had been avoided by keeping a stream of water flowing through the joint for a month. In discussing the dressing of operation-wounds, the relative merits of iodoform, corrosive sublimate solution, etc., were discussed, but preference was given to dry sponge dusted over with iodoform. Great stress was laid on the different drainage of abscess cavities and wounds; for large abscesses, as in suppurating hydatids of the liver and psoas abscess, the tubes ordinarily used were quite inadequate.—*British Medical Journal*, April 30, 1887.

ATTEMPTED REMOVAL OF A NEEDLE FROM THE HEART.—The following case is reported by the *British Medical Journal* of April 30, 1887, from the recent German Surgical Congress:

A student of the Polytechnic School had endeavored to kill himself by driving a needle into his heart. Though the needle entered the heart, the attempt failed. The needle could be distinctly felt. The pericardium was opened, but the needle was not found; a second operation was undertaken, and the operator was successful in seizing the needle, but failed to extract it, so that it slipped completely into the heart, where it could be felt. The operation having been abandoned at this stage, the patient made a good recovery.

FORMULA FOR THE USE OF CARBONATE OF LITHIUM AND ARSENIATE OF SODIUM IN GLYCOSURIA.—VIGIER gives the following:

℞.—Lithii carbonat.	gr. 1½.
Sodii arseniat.	gr. $\frac{1}{20}$.
Extr. gentian.	gr. ¼.

for each pill.

One pill should be taken morning and evening.—*Journal de Médecine*, April 24, 1887.

SIMPLE TREATMENT OF CHRONIC ENLARGEMENT OF THE TONSILS.—DR. BERESFORD says: "By the use of a strong solution of tannic acid injected two or three times a week, with the daily use of a gargle of the same, the knife never need be resorted to. I have used the above treatment in the case of a man, aged twenty years, with good success. I made an application of muriate of cocaine before inserting the needle, and used the injection every three days."—*Technics*, May 3, 1887.

TREATMENT OF PHTHISIS BY INHALATIONS OF THE VAPOR OF A BOILING SOLUTION OF PICRIC ACID.—HUA and BRUÈRE, in the *Gazette Hebdomadaire* of May 13, 1887, call attention to their observation, made originally in 1885, that phthisical workmen employed where they inhaled these fumes, were much benefited. They referred the matter to the Academy of Medicine in December, 1886, and now report four cases of human beings greatly improved by the treatment; they also report rabbits inoculated with tuberculous matter as favorably influenced by picric acid fumes. The writers promise further investigations.

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EXTIRPATION OF THE SPLEEN.—At the recent congress of Russian medical practitioners, DR. A. G. PODREZ, private-docent in Kharkuff, read a paper on extirpation of the spleen, including the notes of a case in which he himself had recently performed this operation. The patient was a woman with ague-cake, associated with ascites and extreme cachexia. The operation was performed on the 22d of November last; the patient subsequently went on well, being able to get up on December 10th. The weight increased, and the ascites disappeared. On the 16th, however, she had a rigor, and the urine contained a large quantity of albumen and hyaline casts. Death occurred on the 27th, and was due, as shown by the necropsy, to diffuse parenchymatous nephritis. The total number of cases of extirpation of the spleen collected by Dr. Podrez (including his own) is 42. Of these one was performed in 1549 by Saccharelli, and one in 1711. The rest all belong to the present century. If his own case is reckoned as a recovery, the mortality is 73 per cent.; if otherwise, the mortality is 76; the recoveries being 12 or 11 out of the 42 cases, according as this is or is not reckoned as belonging to that category. The cause of the 11 deaths was septicæmia in one case, peritonitis in one case, and hemorrhage either during or shortly after the operation in all the others. Dr. Podrez thinks that an improved method of performing the operation is required, in order to obviate the tendency to hemorrhage. It is also to be desired that, by means of further observations, the indications for the operation in cases of enlarged spleen associated with both ague and leukæmia may be defined. —*Indian Medical Gazette*, No. 3.

HYPODERMATIC PURGATION.—DR. GEORGE DALTON HAYS, in an article in the *New York Medical Journal* of May 21, 1887, reports his observations on the use of purgatives hypodermatically as follows:

Various substances have been vaunted by different observers as being efficacious when introduced in this way. The most noted is sulphate of magnesium, which Luton stated, from experiments on himself and on his patients, provoked diarrhœic stools when administered in injections of ten centigrammes. It has not proved equally successful in the hands of others. I have lately been making some experiments upon my own person with colocynthin, the glucoside of colocynth. I have employed it hypodermatically in one-third grain doses, dissolved in water, and combined with one grain of cocaine. Without this latter the injection is painful. In the course of three or four hours it has produced several diarrhœic stools. My experiments have not been sufficiently numerous, as yet, to enable me to draw any wide conclusions. The value, in some conditions of the body, of a drug which will produce prompt and thorough catharsis when introduced hypodermatically, is evident.

DR. PEACAN'S TREATMENT OF CHOLERA.—DR. L. PEACAN, of Buenos Ayres, warmly recommends a plan which he has for many years past pursued with much success in the management of cholera. When a typical case with vomiting and diarrhœa comes before him, he immediately applies a cautery behind the right ear over the condyle of the lower jaw, with the object of stimulating the pneumogastric, and thus paralyzing the action of the sympathetic on the abdomen. He then administers six centigrammes (six-sevenths of a grain) of calomel, which dose is repeated every five hours. Half an hour after taking the first of these powders a mixture is commenced consisting of phosphoric acid, carbolic acid, tincture of opium, tincture of ginger, chloric ether, and mint-water, which is supposed to arrest vomiting and diarrhœa, to allay thirst, and to calm spasm—being, indeed, he states, sufficient to cure mild cases by itself. When the cramps are severe, ten drops of Battley's sedative solution of opium are added; and when there is marked prostration of the nervous system, tincture of coca. If the diarrhœa continues, three grammes (forty-six grains) of glycerole of tannin are given in coffee three or four times a day, and forty centigrammes (six grains) of Dover's powder for three or four nights in succession. The patients are allowed to have as much sulphuric acid lemonade as they care for. In addition to internal medication, warm frictions and sinapisms are applied, especially over the epigastrium. —*Lancet*, May 14, 1887.

DIET FOR THE NEUROTIC.—DR. DANA, of New York, recommends the following in the *Journal of Reconstructives* for April, 1887:

In persons of a sensitive and irritable nervous system, those who are classed popularly as "nervous," neurasthenic, or hysterical, the same rules as to a nitrogenous diet, plus as much fat as can be digested, apply. There is a class of nervous persons who, of themselves, find that they cannot take anything sweet without producing headaches, rheumatic pains, and dyspeptic symptoms. These persons should live on meats, fish, with plenty of butter, oysters, cream and milk with soda-water, the yolk of egg with sherry. Beef-tea with the white of an egg, or some peptonoids forms a very nutritious dish. It has been the canon of medicine for many years that animal food must be the soul of the neurotic's diet.

Most nervous persons find, in addition, that green vegetables, like spinach, agree very well with them. Stale bread can be taken twice a day freely, plenty of butter being used upon it. The dietetic breads from which the starch has been removed are sometimes useful, but are, as a rule, unpalatable, and soon cause disgust.

When a rigid diet is to be laid down, there is no better list for nervous invalids than the following:

Beef, and its preparations.
Mutton and lamb.
Fowl.
Fish, boiled or broiled.
Oysters.
Milk.
Butter.
Egg, raw or soft-boiled.
Graham bread and gluten bread.
Spinach.
Stewed fruits, slightly alkalinized.

Nervous patients, especially hysterical patients, should not use alcohol at all. Tea and coffee can be taken in very moderate amounts. The various mineral waters may be used with impunity, but none of them have much effect in relieving nervousness, or curing the nervous temperament.

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SATURDAY, JUNE 11, 1887.

INTESTINAL ANTISEPSIS.

THE subject of self-infection with products formed in the digestive tract has been studied with increasing interest since Selmi, in 1872, discovered in the results of cadaveric putrefaction, and even in fresh tissues, in flour, bread, etc., certain substances closely resembling the vegetable alkaloids, to which he gave the name of *ptomaines*. Gautier, Tanret, Brieger, Brouardel, Bouchard, Dujardin-Beaumetz, and others, have continued these investigations, and the opinion is growing that certain grave cardiac, respiratory, and cerebro-spinal disturbances, hitherto known as typhoid or adynamic conditions, are due to the absorption of these toxic materials from the intestinal tract.

Under normal circumstances these substances are formed chiefly in the large intestine, but owing to their small amount and their ready elimination by the kidneys and liver, their absorption is harmless. In conditions of disease, however, owing to defective or vitiated secretions, the contents of the digestive tube undergo abnormal processes of fermentation and putrefaction, and toxic alkaloids are developed to an extraordinary extent. For example, if the gastric juice be deficient, and, therefore, its well-known antiseptic action with reference to albuminoid substances diminished, the microörganisms introduced in large quantities with food and drink may find a medium suited to their growth, and give rise in the stomach to fermentations which, continuing in the intestine, will produce an abnormal amount of poisonous products, such as leucin, tyrosin, ptomaines, phenol, indol, skatol, etc. The same reasoning applies to the biliary secretion, of which the amount, and consequently the antiseptic properties, are diminished in all febrile affections.

The intestine having been proved to be a species of laboratory in which are formed virulent poisons capable of aggravating, or, as some hold, even of originating disease, the idea of arresting or limiting the formation of such substances is one that naturally arises. This question is ably treated by MARTINI, in an article on thymol as an intestinal disinfectant, in the *Annali Universali di Medicina e Chirurgia*, for February, 1887. In an interesting summary of the work done in this direction, Martini claims that Semmola, who twenty years ago employed the alkaline and earthy sulphites with the object of destroying toxic and pyogenic substances in the intestine, was the first to introduce a treatment based upon the idea of intestinal antisepsis. In recent times a large number of substances have been employed for this purpose, and in the article quoted their merits and demerits are discussed. Antiseptic enemata have disappointed the expectations naturally raised concerning them, because the most efficacious germicides are too irritating to be thus employed. Powdered charcoal, iodoform, creasote, magnesium benzoate, sulpho-carbonated water, naphthalin, etc., have been given *per os*, with more or less benefit, to arrest or control abnormal processes of fermentation and putrefaction in the digestive tract. Each of these drugs has a more or less enthusiastic advocate. For example, Dujardin-Beaumetz speaks of sulpho-carbonated water as a "heroic remedy" in dilatation of the stomach with putrid dyspepsia, and Goetze, who gave naphthalin in doses of seventy-five to one hundred grains a day to thirty-five cases of typhoid fever, claims that it aborted the disease in seventeen.

Martini, in the article quoted, reports a number of cases in which he employed thymol in doses of from 20 to 120 grains per diem, the usual dose being from 30 to 60 grains. He claims that thymol is of value in chronic intestinal catarrh not associated with grave lesions of the intestinal wall, and in the diarrhœa of cachectic and marasmatic individuals; that in chronic dysentery with profuse diarrhœa complicated with intestinal ulceration, it sometimes reduces the number of discharges, which still remain liquid, but at others it is perfectly useless; that it is, however, of service in acute dysentery; that it is indicated in the diarrhœa of pulmonary tuberculosis, not yet arrived at the last stage; that it is of decided value in diarrhœa caused by the ingestion of an undue amount of food, or of food that is indigestible *per se*, or of altered quality; and that, finally, it is efficacious in summer diarrhœa, and in the diarrhœa of dentition.

Observations as to the antipyretic effect of thymol demonstrate that it does not lower the temperature of

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healthy subjects, or of those affected with non-febrile diseases. In febrile disorders not complicated with gastro-intestinal disturbances, its action is uncertain, sometimes producing slight and transient reductions of temperature, at others having no effect whatever. In febrile processes accompanied with gastro-intestinal disturbance, for example, in typhoid fever, it is of decided antipyretic value.

That thymol exerts its beneficial action by disinfecting the intestinal contents, is proved by its great insolubility, and by the fact that, during its administration, phenol disappears from the urine. This substance, one of the most constant products of intestinal putrefaction, is eliminated, for the most part, by the urine, where it is found even in health, and experimental therapeutists regard its amount in that fluid as a test of the effect of an intestinal antiseptic.

THE VALUE OF ANTIPYRETICS.

AT the meeting of the Association of American Physicians held at Washington last week, there was a most interesting discussion upon the value of antipyretics, an abstract of which appears in another column. The speakers represented the professional opinion of a wide area of the Union. DR. H. C. WOOD, who led the discussion, spoke almost solely on the action of antipyretics from an experimental standpoint, while the paper of DR. MINOT, of Boston, viewed the matter from its clinical side.

Dr. Wood reminded his hearers that there are two classes of antipyretics, viz., those which reduce bodily temperature by lowering arterial pressure, thereby increasing heat dissipation, and those which, acting in some as yet unknown manner, prevent the production of heat. The first of these are, in reality, false antipyretics, the second, true antipyretics; for the first only aid in dissipating heat already formed, while the second class prevent its formation, and thereby do away with the tissue waste which plays so important a part in lessening the vitality of the sick man. To the false antipyretics belong aconite, veratrum viride, and similar cardiac depressants, while antipyrin, antifebrin, and perhaps quinine, belong to the second class.

The paper of Dr. Minot dealt particularly with the use of antipyrin and thallin in typhoid fever, and the conclusion arrived at by this observer, and the speakers who followed him, was that antipyrin is in all probability more preferable in every case, notwithstanding its larger dose and cost. The discussion, however, soon passed beyond the necessarily limited remarks of the speakers named, and most interesting reports of the varying experiences of the members were brought forward.

Notwithstanding the comparative youthfulness of antifebrin, it was surprising to hear how generally it had been used and how satisfactory the results obtained from its use had been; the whole tone of the discussion being decidedly in favor of its employment in preference to any other drug of the class. Antipyrin occupied a second place, while but few favorable remarks were made in support of thallin.

Among other collateral questions which arose, the one regarding the comparative value of the cold bath and antipyretic drugs was of great interest, and the fact that the cold bath acts not merely by abstracting heat, but by preventing its development, was well brought out. The opinion of most of the speakers was that while both means of reducing fever are useful, neither one can supplant the other, and that in some cases antipyretics perform all that is to be desired, while in others nothing but the cold bath will accomplish the purpose.

No discussion was held as to the relative value of antipyretics other than those named, no mention being made of them except to deny their usefulness. The cold water treatment first introduced by Brandt did not receive favorable notice, although none of the speakers seemed to have used this method.

DETECTION AND TREATMENT OF MORPHIA-TAKING.

THE physcian who has been worried and deceived by the lying and cheating of the confirmed morphiomaniac or opium-eater will be grateful for any help toward the diagnosis of this disease, which does not depend upon the morbid imagination or the torpid conscience of the patient. DR. OSCAR JENNINGS, of Paris, has earned some of this gratitude by following his previous studies of morphinomania with one on its diagnosis and treatment. He suggests first the examination of the urine for morphia or opium salts. The reagents he uses are (1) the double iodide of mercury and potassium (HgCl 13.546, KI 49.80, H_2O to a quart). This gives a yellowish-white precipitate with the alkaloids. (2) The iodized iodide of potash (I 10, KI 20, H_2O 500), the precipitate from which, in the presence of morphia salts, is brown or yellowish. If the quantity be too small to discover by one of these reagents, boil the urine to a third, treat with tartaric acid, then dissolve the tartrate of morphia thus formed with amylic alcohol; decompose the salt with ammonia, and if morphia be present the solution should show a blue color on adding the perchloride of iron. A slightly less troublesome proceeding will detect meconic acid and prove the taking of opium: evaporate, wash with alcohol and boiling water, neutralize with magnesium carbonate, and treat, after filtration, with solution of iron perchloride. A blood-red color is characteristic of meconic acid.

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Still further, Dr. Jennings says that the most marked objective symptom of deprivation of morphia in the confirmed habitué is enfeeblement of the heart's action, and this is shown by the peculiar sphygmographic tracing. It differs from the normal in presenting a truncated apex in place of a pointed one, due probably to a capillary obstruction to the movement of the blood. The tracings given show, too, a lessened amplitude of beat—while those taken five minutes after the injection of the customary dose have increased in amplitude, have lost the "plateau" at their joint, and seem entirely normal. From this Dr. Jennings deduces the necessity of using, in the treatment of such cases, a circulatory stimulant of some kind to replace the withdrawn morphia; of such medicines he has found nitroglycerine to produce the same improvement of the pulse as morphia, and patients taking it declare the sensation of warmth and comfort following its use is like that which they experience on first receiving morphia after deprivation of it. Valerian, bicarbonate of soda, a hammock instead of a bed, faradization, dry friction, and the Turkish bath are his other weapons.

The whole study is an interesting one, and especially suggestive to life-insurance examiners, who occasionally suffer from inability to get truthful answers on the subject of the opium-habit.

PICRIC ACID IN FUNGOUS ENDOMETRITIS.

CHÉRON, in the *Revue Médico Chirurgicale des Maladies des Femmes* for May 25th, strongly recommends a uterine injection of picric acid in cases of fungous endometritis. The curette is first used, so that the uterine cavity is freed from the exuberant growth of mucous tissue. This operation leaves a bleeding surface with many open lymphatics and capillaries, and it is necessary thoroughly to cleanse it, in order to prevent the retention of blood in the uterine cavity, and the reproduction of the fungous growths, which is very liable to occur if there be prolonged suppuration.

A most valuable agent for these purposes is found in picric acid, which promotes the prompt healing of the wounded surface. It should be used in solution, the strength being one drachm of the acid to a pint and a half of warm water; the solution should be injected by means of Bozeman's catheter, every day, or once in two days. Picric acid is both antiseptic and analgesic, and on account of these properties is especially suitable for use in cases of fungous endometritis after thorough curetting.

M. TRÉPANT, of Amiens, has called attention in the *Revue de Thérapeutique* for May 1, 1887, to a mode of inducing anæsthesia devised by him, which has, apparently, succeeded perfectly. The method consists in giving every five minutes a spoonful of the following mixture, until all is taken: Syrup of morphine (French Codex) ʒiv; chloral hydrate 46 grains. Allowing twenty minutes for the absorption of this medicament from the stomach, chloroform is then given by inhalation in the usual way. The patient quickly passes into the anæsthetic condition, without excitement, and without nausea and vomiting, and the time of the insensibility is prolonged without further use of chloroform, of which but a small quantity is required to produce entire insensibility at first.

It is obvious that M. Trépant's method is only a modification of that known for several years as "mixed anæsthesia," and it is probably not more efficient than the latter, whilst it may be more dangerous.

No satisfactory theories have yet been presented explaining the origin of fibroid tumors of the uterus, or of cystic tumors of the ovaries. But GALIPPE and LANDOUZY, in the *Gazette des Hôpitaux*, have recently suggested that the agents in the production of these growths are microbes. They have discovered in two cases of fibromyomata of the uterus, and in a like number of cystic ovarian tumors, microorganisms which, they suggest, act as irritants, causing proliferation of tissue. They sustain this hypothesis by analogous facts derived both from animal and vegetable pathology.

Whether this view will be confirmed by accumulation of similar proofs remains to be seen, and until then it can only be regarded as a possible hypothesis.

AT the recent meeting of the Sixteenth Congress of German Surgeons, the proceedings of which may be found in the *Wiener med. Presse*, No. 18, 1887, RYDYGIER recorded three cases of resection of the pylorus. In one, practised for ulcer, the patient was doing well at the end of three years; in the second, done for carcinoma, the patient died in two years and a half; while in the third, performed likewise for carcinoma, the woman was in the best of health at the expiration of six years, and had borne two children. This last case is the only one out of upward of one hundred operations in which a cure has resulted.

WE are informed that Dr. J. Ohage, of St. Paul, on May 29th, performed Cæsarean section by Sänger's method, on a rachitic dwarf, 3 feet 10½ inches high. The mother unfortunately was attacked by acute sepsis and died on the fifth day, from diphtheritic endometritis. The child weighs seven pounds, and was doing well at the last report.

WE regret to announce the death, on May 15th, of typhoid pneumonia, at the age of 50 years, of DR. JOHN FULTON, of Toronto, who, for seventeen years ably filled the editorial chair of our esteemed contemporary *The Canada Lancet*.

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SOCIETY PROCEEDINGS.

THE ASSOCIATION OF AMERICAN PHYSICIANS.

Second Annual Meeting, held at Washington, June 2 and 3, 1887.

THURSDAY, JUNE 2D.—MORNING SESSION.

The meeting was called to order at 10 o'clock by THE PRESIDENT, S. WEIR MITCHELL, M.D., of Philadelphia. He referred briefly to the purposes of the Association as being purely scientific, and said that neither ethical questions nor medical politics had a place in its work. He referred to the great desirability of making the meeting of the Congress of American Physicians and Surgeons, to be called in the autumn of 1888, a success, and in conclusion he reported the death of three members, Dr. Thomas F. Rochester, of Buffalo; Dr. Thomas A. McBride, of New York; and Dr. E. D. Hudson, Jr., of New York.

DR. R. PALMER HOWARD, of Montreal, read a paper which was entitled

CIRRHOSIS OF THE LIVER IN CHILDREN.

He reported two cases in which cirrhosis of the liver was present in children, brother and sister, and he exhibited sections of the organs.

DR. WILLIAM H. WELCH, of Baltimore, reported a case of cirrhosis in a child twelve years of age, who had come from the coast of Africa and suffered with malaria. Both liver and spleen were deeply pigmented. The clinical features of the case could not be obtained. Most of the cases of cirrhosis of the liver of malarial origin have been reported from the coast of Africa. Very little has been brought forward in this country with regard to the malarial origin of cirrhosis.

DR. F. FORCHHEIMER, of Cincinnati, had seen two cases that might possibly be called cirrhosis. One was that of a child of eight years. At the post-mortem the characteristic hobnail liver was found. In this case he considered the cirrhosis due to syphilis. The second case is now under observation in the Children's Hospital of Cincinnati, the patient being in the last stage of cirrhosis. In this case there is a history of syphilis and the child has hereditary syphilis of the nervous system. To his mind it was clear that syphilis is the most common cause of cirrhosis of the liver in children.

DR. WILLIAM PEPPER, of Philadelphia, reported a case in which cirrhosis of the liver followed measles in a child eight years of age. There was no syphilitic history. During the attack of measles, there were symptoms of hepatic disorder, as shown by occasional attacks of catarrhal jaundice. Subsequently the symptoms of developing cirrhosis made their appearance and death in a comatose condition finally occurred. The whole duration of the case could not have been less than a year. At the autopsy a typical hobnail liver was found. The liver had been much enlarged, but it gradually contracted so that at the time of death it was about the normal size.

DR. JOHN GUITÉRAS, of Charleston, read a paper on

OBSTRUCTIVE SAFETY VALVE ACTION IN THE HEART, AND DIRECT FUNCTIONAL MURMURS.

In a previous paper on malignant endocarditis he said he had referred to the significance of mitral direct presystolic murmurs, which were proven by the autopsy to be unconnected with any lesion of the mitral orifice. The lesions were those of intense aortic regurgitation. He had attributed the murmurs to the recoil of blood upon the mitral leaflets holding them tense against the stream of blood coming from the auricle. In the opinion of the late Dr. Flint, direct functional mitral murmurs were limited to a smaller number of cases of aortic regurgitation, but the author thought that functional mitral murmurs were not so rare. Obstructive functional murmurs are common in aortic regurgitation.

Pulmonary systolic murmurs are more frequent than any other form of cardiac murmurs. In examining one hundred consecutive cases, he had found in sixty-two, systolic pulmonary artery murmurs. In these the murmurs were present during tranquil breathing or during respiration in such a way as to produce changes in the pulmonary circulation. If account is taken of the bruits heard in this region the proportion becomes greater. The clearness with which these murmurs are heard depends upon the proximity of the artery, the thinness of the chest walls, the nature of the surroundings, and, finally, the proximity of the main trunks to the capillary distribution. Systolic pulmonary murmurs can be developed in the majority of healthy individuals, if we exclude those with thick chest walls and those who are not intelligent enough to modify their breathing as directed. He held that such a murmur is a dynamic obstructive valvular murmur, and is produced by the effect of changes of blood-pressure upon the semilunar valves. A certain degree of pressure in the artery must tend to prevent the opening of the valve. This causes a slanting position of the valves and a narrowing of the orifice with the production of a sonorous whirl.

The fact that such murmurs are not more frequently developed at the aortic orifice is due to the greater power of the ventricle and the wider distribution of the systemic circulation. There are, however, cases in which increased arterial tension is expressed not only by accentuation of the aortic second sound, but by an aortic systolic murmur. He had heard it in atheroma and in Bright's disease where there was no marked anæmia. Pulmonary artery murmurs as heard in ordinary breathing are confined to the expiratory act and are loudest at the beginning of the act. The murmur is sometimes only heard with the first beat that occurs with expiration. In order to develop further this murmur, it is only necessary to arrest respiration. It is better to stop breathing during expiration, especially at the end of normal expiration. A full expiration makes the murmur louder. At the end of inspiration, it is more difficult to develop the murmur for several reasons, 1, because it requires entire arrest of respiration to produce engorgement of the main trunk, 2, because prolonged inspiratory effort is accompanied by a continued hum of the intercostal muscles, 3, because the expansion of the lung interferes with the transmission of any murmur that may be present. A slight murmur is frequently heard in inspiration if the arrest of breathing is pushed far enough. The speaker asked, Are we not justified in assuming that there is a safety valve action in this attitude of the pulmonary valve, which, together with the leakage at the tricuspid orifice, tends to prevent engorgement of the lungs by retardation of

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the flow of blood in the systemic veins, so that continued for a time it does no harm?

In reference to the murmurs of anæmia, he thought that they were due to some disturbance of the valvular apparatus. In this condition there is a marked reduction in the quantity of blood. The valves require a certain amount of expansion of the vessels, in order to allow them to apply themselves to the walls. Venous hums and basic murmurs he thought to be of valvular origin.

DR. A. L. LOOMIS, of New York, said that many different explanations of murmurs within the heart cavities had been given. We should recognize that they are due to many different causes. Many are obstructive in character, while others are due to the impinging of currents of blood upon each other in the heart. They are also due to the force with which the blood current is carried from the heart into the vessels. They are also due or greatly intensified by the condition of the blood. He thought that they may also be due to irregular action of the heart produced by nervous conditions. The obstructive mitral murmurs referred to are of frequent occurrence in connection with aortic disease, where there are dilatation and feebleness of heart power, but on autopsy he had always found such changes in the mitral valves as seemed to him to account satisfactorily for the murmur heard.

He had heard the murmurs so readily produced during respiration, but where these murmurs have been persistent, he had always found conditions of anæmia and failure of the right heart. It seemed to him that the explanation is either hæmic or failure of heart power. As we study the cases more we shall find that they are due not so much to changes in the valvular orifices as to changes in the heart cavity, and in the heart walls. Murmurs have come to be of very little pathological significance to him, unless there are other changes associated with them. The worst cases of heart disease that he had met with have had the simplest and least distinct heart murmurs.

DR. E. T. BRUEN, of Philadelphia, stated that in a case of anæmia which he had recently studied, the blood corpuscles were reduced from the normal and there was a great reduction in the hæmoglobin. There was also great relaxation of the vascular system; so much so that as the arm hung out of the bed, there was a venous pulse at the back of the wrist. This was attributed by Dr. Osler and himself to relaxation of the capillary vessels to such an extent as to permit the systolic impulse of the left ventricle to force the blood through the capillaries into the veins. There was no venous pulse in the neck. In this case there were murmurs at each of the valves of the heart. As the anæmia improved and the crasis of the blood was restored, the venous pulse disappeared and the murmurs gradually lessened and the man has now no murmur whatever. This case is corroborative of the view of the author, that in anæmia the murmurs are due to some functional disturbance of the valve.

DR. F. P. KINNICUTT, of New York, said that it has been claimed by certain observers, that pulmonary systolic murmurs are transmitted from the mitral valve into the auricular appendage. The condition required that this may occur is said to be dilatation of the appendage, causing it to approach the chest wall. In some anatomical examinations made a few years ago, he had found that in the normal condition the auricular appendage was concealed beneath the pulmonary artery, and when fully dilated its tip only could be seen beyond the edge of the artery. It was even then one and a half inches from the internal surface of the chest.

DR. F. C. SHATTUCK, of Boston, remarked that when auscultation was first introduced all cardiac murmurs were considered of bad omen. It was then discovered that many systolic murmurs were practically of no importance. We are now finding out that all diastolic murmurs are not of evil import and that they may be transitory and functional. A murmur by itself is next to nothing; there must be something beside the murmur to make it of much importance.

DR. SAMUEL C. CHEW, of Baltimore, with reference to the diagnosis between aortic regurgitant and mitral direct murmurs, said that the diagnosis can usually be made by attention to the following points: An aortic diastolic murmur, although it may be intense at the apex, becomes manifestly louder as we reach the right side of the sternum in the second intercostal space. It will then occupy the whole diastole. If the murmur is mitral in origin it generally will be presystolic, and will be also heard in the scapular region. The aortic murmur is not apt to be heard in the latter situation.

DR. BEVERLY ROBINSON, of New York, had found occasionally in acute strain of the heart, not necessarily brought about by great muscular exertion, murmurs which unquestionably had nothing to do with organic changes in the heart, and cannot be explained as due to any special modification in the blood. The murmurs seemed to be due to more or less acute dilatation or obstruction of the mitral orifices. If these murmurs do not receive careful attention and proper treatment they may continue for a considerable length of time and then become of more or less grave import.

DR. I. T. DANA, of Portland, had had under his observation two sisters, one forty years of age, and the other thirty-three. The mother died of organic heart disease. Both of these sisters have had a mitral regurgitant murmur. In the older sister the murmur, after remaining for five or six years, disappeared. It remained absent for one or two years and then returned, and has continued for the past two or three years. In the second case, the murmur after having been present for five or six years, disappeared and has since remained absent. He asked if it were possible that a murmur connected with organic heart disease should disappear with improvement of the health and reappear when the health again fails.

DR. HOSMER A. JOHNSON, of Chicago, then read a paper on

PNEUMATIC DIFFERENTIATION.

He had compared the results obtained by the cabinet with those obtained by the Waldenburg apparatus, and he held that the former accomplished no more than the latter. The pneumatic cabinet he considered cumbersome and expensive, with nothing to commend it especially in the treatment of pulmonary diseases.

DR. JOHN S. BILLINGS, U. S. A., then read a paper on

METHODS OF LITERARY RESEARCH.

He referred to the best way of using libraries, with especial reference to medical literary work. He also

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spoke of the great importance of carefully prepared catalogues of books.

AFTERNOON SESSION.

DR. H. C. WOOD, of Philadelphia, opened a discussion on

THE ANTIPYRETIC TREATMENT OF FEVER.

In order to make the matter as brief as possible, he had prepared certain propositions which he would state, and then give what he thought to be the proof of their correctness. The *first* proposition was, "Fever is a disturbance of calorification in which, through the influence of the nervous system, heat dissipation and heat production are both affected. If there be a fever which is produced by the direct action of a poison, independently of the nervous system, we have at present no proof of its existence."

If an animal's temperature rises, there must be a certain number of heat units used in producing that rise. If the temperature falls, there must be a corresponding lessened production of heat. In his experiments the agent used to produce the fever has been the pyogenic principle found in ordinary commercial pepsin. After the substance has been introduced the animal is put into a calorimeter. The animals used in the experiments have been dogs. In the normal animal, heat production and heat dissipation are correlated functions. When the poison is injected it is found that heat dissipation increases at the time that heat production is diminishing, so that the fall of temperature was in part the result of heat dissipation and in part the result of diminished heat production. It is impossible that there should be this wide disturbance of these two functions simultaneously, unless the poison which produces the fever acted upon some one central organ, and that must be the nervous system. McCallister, of London, while believing that fever is often produced through the nervous system, thinks that at times it may be produced by widespread tissue change caused directly by the poison, his reasoning being that in the advanced stage of fever the temperature is higher than at the beginning. He says that the time when the poison is at its maximum does not correspond to the time when the fever is at its maximum. The objection to this argument is that we do not know that the poison of the disease is the direct cause of the fever. The poison which causes the disease in scarlet fever, etc., is probably not the poison which causes the fever. The latter is probably generated in the system.

Second. "Heat production is regulated by a nervous apparatus, our knowledge of which is still imperfect. There is certainly an inhibitory centre which depresses or controls the production of heat. It probably does this by acting upon the trophic cells of the gray matter of the spinal cord. It is possible also that there is a centre which, when excited, increases tissue change, but its existence has not yet been proven." The speaker then gave a *résumé* of the experiments which he had performed which, in his opinion, proved the truth of the above proposition.

Third. "Heat dissipation is regulated through the vasomotor system, so that vasomotor paralysis is followed by an enormous loss of animal heat, and under unfavorable circumstances by death from cold." If section of the cord is made in such a way as to get vasomotor paralysis without destruction of the respiratory centres, the heat dissipation rises enormously. If the animal is kept in a temperature of 50° or 60°, it dies in a few hours of progressive loss of heat. If kept in a warm chamber, it lives for days. The cause of the rapid heat dissipation is the opening of the bloodvessels of the surface of the body.

When these remarks are applied to a study of antipyretics, it is seen that drugs may lower bodily temperature in health or in fever by increasing heat dissipation. In this way act all agencies which cause vasomotor paralysis. Antipyretics acting in this way may be called false antipyretics. Then it is conceivable that there may be drugs which act on heat production through the inhibitory nerve apparatus, of which mention has been made. Such drugs may for convenience be called true antipyretics. Aconite, veratrum viride, and drugs of that class belong to the false antipyretics. Whether or not there are any true antipyretics has until recently been a question which we have been unable to answer. With regard to antipyrin, certain experiments made in the University of Pennsylvania seem to give some positive results. Care must be exercised in these experiments not to confound a normal defervescence with the action of the drug administered. In the dog the use of antipyrin diminishes both heat production and heat dissipation, the former being diminished more than the latter. It is probable that heat production is primarily affected. The question arises whether this result be due to an effect on the circulation. He has found that antipyrin has no effect upon the circulation. The blood pressure was uninfluenced by its administration. He therefore concluded that the action of antipyrin upon the bodily heat was entirely independent of any action upon the circulation, and the probabilities are, of course, that it acts through the nervous system. Beyond this our present knowledge does not extend.

DR. FRANCIS MINOT, of Boston, then presented some remarks on

THE TREATMENT OF TYPHOID FEVER BY ANTIPYRIN AND THALLIN,

based on the observation of twenty-four cases treated in the Massachusetts General Hospital, the object of the study being to ascertain the proper dose of the drugs, their general and specific effects upon the patients, the results from their continued use as compared with those from their occasional employment, any unfavorable results, and the general effect of antipyrin and thallin upon the course of the disease.

The following conclusions were reached: 1. Both antipyrin and thallin have a remarkable power of reducing the temperature in typhoid fever. 2. In no case was the use of these refrigerants apparently followed by any unfavorable effect upon the course of the disease. 3. The general condition of the patient was more confortable after taking antipyrin and thallin, which were often followed by sleep. 4. The refrigerant medication by antipyrin and thallin appears to have no specific or decided effect upon the course or issue of typhoid fever. It often contributes much to the patient's comfort, perhaps indirectly promotes his safety. 5. The effect of antipyrin and thallin in promptly lowering the temperature, shows that the danger in typhoid

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fever does not consist in high temperature alone, and that the latter is rather an index of the violence of the abnormal condition which we call fever, though perhaps adding somewhat to the danger. 6. By the internal use of antipyrin and thallin, all the effects which are claimed for the treatment of typhoid fever by the cold bath are readily obtained without the trouble and inconvenience of the latter method, and without exposing the patient to the dangers of exhaustion and shock consequent on the fatigue of removal from bed. 7. These remedies may be given without danger to the youngest patients in suitable doses; and, indeed, their beneficial effects are more decided and the unfavorable consequences are less observable than with adults.

DR. ATKINSON, of Baltimore, said that so far as the temperature reducing power of these agents is concerned, there can be no question that we are coming more and more to realize that elevation of temperature is far from being all there is in pyrexia. As regards the relative merits of thallin, antipyrin, and antifebrin, the tendency to chilling after the use of thallin is decidedly greater than after the use of antipyrin, while the latter is more apt to produce nausea and vomiting. He was disposed to disagree with the statement that the use of these drugs can take the place of the external application of cold water. It has recently been reported that one observer abroad had treated two hundred cases in private practice by the use of baths with a mortality of nothing, in army hospitals he has had a mortality of five per cent., and in ordinary hospital practice a mortality of less than eight per cent. Although with antipyretics we can reduce the temperature at pleasure, yet the duration of the case is not lessened, and in some cases it has been thought to be prolonged.

DR. WOOD remarked that we must not look upon the use of cold water as acting merely by the abstraction of heat. Its action is more than this. It probably exerts some influence through the superficial nerves.

DR. GEORGE L. PEABODY, of New York, had found that a certain proportion of cases which does not bear the cold bath will bear the use of antipyretic drugs, while on the other hand, the bath may be used in a certain number of cases in which antipyretics cannot be applied. From clinical experience he was convinced of the truth of the statement of Dr. Wood, that the cold bath accomplishes more than the simple reduction of temperature. Its soothing effect upon the nervous system is greater than that accomplished by the reduction of temperature by antipyretic drugs. He believed that in many instances the course of the disease is favorably modified by the use of the cold bath. Another important matter is that since the introduction of these methods of antipyresis, the number of relapses seems to be greater and more fatal. He differed from Dr. Wood on the point that antipyrin acts solely by diminishing heat production, and that it does not increase heat dissipation. It seemed to him that the increase of heat irradiation from the surface is very great, not only where it produces sweating, but also where it does not.

DR. W. H. WELCH, of Baltimore, said that it was a question how far rise in temperature is an important element in fever, and an element which calls for interference on the part of the physician. There is comparatively little evidence that the grave symptoms of fever are referable to the elevation of temperature. There is no doubt that temperatures of 110° to 113° produce serious symptoms, but whether or not ordinary temperatures of 105° to 107° exert any serious action on the body, is a question which is certainly unsettled. It has been shown that rabbits can be kept in a box with a continuous rectal temperature of 107° for at least two weeks, provided the precaution is taken to keep the box well ventilated and the animals supplied with moist food. Patients may have a perfectly clear brain and no grave symptoms, with a temperature of 106° or 107°. On the other hand, there are severe and fatal cases of typhoid fever in which the temperature has never registered a great height. While in most cases there is a certain proportion between the height of the temperature and the severity of the disease, yet there are certain cases in which this proportion does not exist.

DR. WILLIAM PEPPER, of Philadelphia, had been disposed from his experience, to think that antipyrin and antifebrin are superior to thallin. Between the two former he had not noticed any marked difference. He had used both largely in a variety of cases and had not seen any of the dangerous symptoms which have been mentioned by some writers. The action of these drugs seems to be purely through the nervous system. He had seen no effect upon the circulation, upon the respiration, or upon the secretions, save that of the skin. Some of his observations have been of interest with reference to the relative value of the external use of cold water and the internal use of antipyretics. In the sudden acute pneumonias of children with a temperature of 106° or 107°, with initial convulsions, where the prompt and repeated use of cold baths has been without gratifying results, full doses of either of these antipyretics have produced a remarkably successful effect. In a recent case in a child with double croupous pneumonia involving two-thirds of the left lung and one-third of the right lung, with a temperature in the rectum of 107°, and with repeated convulsions, cold baths failed to relieve the symptoms, although repeated at intervals of three hours. Antipyrin in repeated doses controlled the pyrexia at the beginning and on several occasions during the course of the disease, and after a severe struggle the child recovered. As to the ability of these agents to replace cold baths under all circumstances the evidence is not adequate. In the sudden hyperpyrexia occurring in the course of rheumatism he was not prepared to accept the view that these drugs are capable of replacing the cold bath. In these cases we have direct evidence that the high temperature is the direct cause of the symptoms, at least of the severe nervous symptoms. He was not one of those who consider high temperature in itself a dangerous symptom. There is no proof that high temperature, provided that it has not induced secondary changes, should be regarded other than as one symptom of the disease. He had had many patients with typhoid fever with a temperature of from 103° to 105°, who had done perfectly well without any measures directed to the reduction of the fever. We, however, meet with cases in which these temperatures are attended with certain symptoms for which there is apparently no other cause. In such cases we must consider that the hyperpyrexia calls for treatment. He had noticed the effect, to which attention has been called,

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that is, the deep and tranquil sleep which follows the administration of these antipyretics.

DR. GEORGE C. SHATTUCK, of Boston, had used both antipyrin and antifebrin largely, and he thought that antifebrin offered all the advantages of antipyrin without its disadvantages. It has none of the disadvantages which belong to thallin. Three or four grains of antifebrin accomplish the same results as are produced by a larger dose of the other drugs. The disagreeable symptoms which some writers have referred to as following antipyrin are probably due to the fact that they follow the original recommendation and give 30 grains of the drug. The same benefit can often be obtained from 15 grains and often from 7 grains. With reference to the point suggested by Dr. Welch, he said that whether pyrexia is or is not a dangerous feature of the disease, we find clinically that where a patient has high fever, is irritable, impatient, and uncomfortable, the administration of one of these antipyretics, or the external use of cold water, produces a tranquil and refreshing sleep, and the patient awakes in a condition much better to continue the struggle with the disease.

DR. J. C. WILSON, of Philadelphia, agreed with other speakers that antifebrin has many advantages over thallin, particularly in its cheapness and in the smallness of the dose. A recent observation which he had made is interesting as bearing on the question of heat dissipation. He had been treating a case of typhoid fever in which, from time to time, antifebrin in five grain doses was given. These were repeated whenever the temperature reached 104° F. This caused copious sweating, with the usual reduction of temperature, amounting to three and a half or four degrees. On the last occasion one ninety-sixth of a grain of sulphate of atropia was given with the antifebrin. No sweating occurred and the temperature was reduced only one and one-half degrees.

DR. JAMES T. WHITTAKER, of Cincinnati, differed from the gentlemen who seem to accept the view that fever is a neurosis. He thought that there is no proof that the nerve centres are distinctly irritated, and we have no proof that the agents which reduce fever act directly on the nervous centres. Is it not more probable, he asked, that the antipyretic action is really an antimicrobic action? We have some observations which go to show that the disease is caused by bacteria, or if not directly by bacteria by some of their products, the ptomaines. Would it not be more rational to study the habits of these bacteria and address ourselves rather to the removal of the cause than to the counteracting of the effects?

DR. H. M. LYMAN, of Chicago, said that with regard to antifebrin and antipyrin his experience has been that of previous speakers, and his preference is for the former drug. He was disposed to regard their great value as proceeding not so much from their power to reduce temperature as from their general effect, especially upon the nervous system. He regards them as valuable adjuvants in the treatment of disease, largely from their hypnotic and tranquillizing effect upon the nervous system, to which allusion had already been made. He has observed that in many instances where, in abrupt febrile affections, relief has not been secured from antifebrin and antipyrin this failure is frequently due to the presence of the condition we call rheumatic, and there salicylic acid gives the relief that we fail to get with the antipyretics.

DR. JOHN GUITÉRAS, of Charleston, had some experience with these drugs in the treatment of the continued fevers of warm climates, but here the results have been rather negative and have showed the advantage of stopping their use after they have been continued for a certain length of time. He had been called in consultation where the drug had been continued for ten or fifteen days, each time that it was given producing a certain reduction of the temperature but having no permanent benefit, and the patients have begun to improve so soon as the drug was stopped. It has seemed that when given continuously in this way these antipyretics have an effect on the vasomotor system. The pulse is weak and dicrotic and he considers it advisable to give digitalis. The effect of cold-water baths in these continued fevers of the South seems more beneficial. If continued for two or three days they often favorably modify the course of the disease.

DR. PEABODY, of New York, said with reference to the point suggested by Dr. Whittaker, that there was no question in his mind that a considerable proportion of cases of typhoid fever can be aborted by antiseptic treatment of the intestinal ulcers with naphthaline or resorcine. For the past two years he has treated all cases coming under observation during the first ten days of the disease with a calomel purge (ten grains), followed by naphthaline in such doses that at least seventy or eighty grains are taken during the twenty-four hours. Under this treatment he had without doubt succeeded in aborting many cases in which the symptoms were quite pronounced. He has not succeeded in cases coming under observation at the end of the second week.

DR. H. C. WOOD, with regard to the dissipation of heat by sweating, stated that in the dog, on which the experiments were made, there are but few sweat glands; there are a few in the paws and about the mouth, so that there could be no heat dissipation from this cause. Sweating in man does undoubtedly cause a dissipation of heat. With reference to the possible influence of antipyrin on fever, through some action on the bacteria causing the fever, he said that in the experiments to which he had referred no microbes were concerned in the production of the fever, which was induced by the pyogenic principle of pepsin.

DR. JAMES TYSON, of Philadelphia, reported a recent case of rheumatism in which the temperature suddenly went up to 105°, with alarming brain symptoms. Antifebrin in five grain doses failed to produce any effect. The patient was then put into a cold bath, and the temperature of the water gradually reduced to 72°. The discomfort experienced by the patient then prompted his removal from the bath. The thermometer in the rectum showed a reduction of only one-half of a degree, but within the course of half an hour the temperature fell three degrees. He scarcely thought that this was a natural defervescence, but must attribute it to the effect of the bath. The fall in temperature was followed by a disappearance of all the symptoms, and the recovery of the patient. While he had never seen any serious results from the use of thallin and antipyrin, yet there have been symptoms which caused much alarm to the attendants. He had not seen such symptoms follow the use of antifebrin.

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DR. R. P. HOWARD emphasized the fact that internal antipyretics and the cold bath are not equivalents, they are substitutes and important auxiliaries to the physician. These measures relieve special symptoms, but whether or not they shorten the duration of the disease, is a question not yet settled. Another important point is with reference to relapse in typhoid fever. This is a subject which requires investigation. He thought that every relapse, so-called, is due to the absorption of fresh poison. It is really a fresh attack, an initial attack which runs a severe course, and often proves fatal.

(*To be continued.*)

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Fourth Annual Meeting, held at Baltimore, May 31 and June 1, 1887.

TUESDAY, MAY 31ST—AFTERNOON SESSION.

The Society was called to order by THE PRESIDENT, DR. FRANK DONALDSON, SR., of Baltimore, who delivered an address on the

PROPHYLACTIC TREATMENT OF THOSE WHO INHERIT A PREDISPOSITION TO PHTHISIS.

DR. B. F. WESTBROOK, of Brooklyn, said that, according to the results of certain observations, the anatomical and physiological conditions which predispose to this trouble are a disproportion between the size of the heart and the lungs; the heart being smaller in proportion to the size of the lungs than in ordinary individuals, and a disproportionately small digestive apparatus. The former condition interferes with the circulation at the apices, while the latter condition causes a lack of nutrition.

DR. JAMES R. LEAMING, of New York, read a paper on

THE PHILOSOPHY OF CLIMATIC TREATMENT OF DISEASES OF THE CHEST.

It is observed that the greatest improvement takes place during the first three weeks of the patient's stay at a new place. He suggested that a line of resorts be established along the Atlantic seacoast. The patient could begin in the summer at the most northern, and gradually pass southward, making a stay of a few weeks at each place. Having completed the series, the patient may return, taking the stopping-places in a reverse order. This same plan might be applied to the Pacific coast and to the mountains. He also suggested the propriety of State and municipal authorities furnishing sanitariums for the benefit of those unable to avail themselves of the advantages of existing institutions.

DR. R. G. CURTIN, of Philadelphia, then read a paper on

THE INFLUENCE OF SEA AIR ON SYPHILITIC PHTHISIS.

The histories of five cases of what appeared to be syphilitic phthisis were given, in which improvement followed prolonged sea voyages, and in each case the symptoms returned when the patient again took up his residence on land. He was not prepared to say why it was that the sea air proved beneficial in these cases, while in most of the ordinary cases of phthisis residence on the sea-coast was not desirable.

DR. E. T. BRUEN, of Philadelphia, referred to the desirability of having correct views with regard to the influence of sea air on pulmonary affections. It is probable that in syphilitic phthisis the benefit of the sea air is due to its influence on the catarrhal processes. In catarrhal affections of the mucous membranes in general it seemed to him that residence at the seashore is useful. On the other hand, in tubercular phthisis, the influence of sea air has been disastrous. He was led to make these remarks from the fact that so many patients with phthisis are recommended to reside at the seashore or to take an ocean voyage. He had found that those cases benefited by prolonged sea voyages are those in which there is no inherited tendency to tubercle.

DR. V. Y. BOWDITCH, of Boston, would make a great distinction in speaking of sea-coast air and the pure sea air. Cases which could not stand the harsh cold and changeable air of the seacoast, may be benefited by a sea voyage or residence on an island some distance from the shore, where the conditions are similar to those which obtain in a sea voyage.

DR. F. I. KNIGHT, of Boston, said that while he agreed with the general feeling that the coast climate is not suitable for cases of phthisis, yet in several instances he had known patients to improve and gain in weight during a stay at some of the coldest resorts on the New England coast.

DR. J. C. WILSON, of Philadelphia, said that in his experience there are three classes of patients with consumption who cannot go to our exposed Atlantic seacoast without risk. These are, first, those in whom there is active febrile disturbance; secondly, those of a highly excitable and nervous organization; and thirdly, those who suffer from repeated attacks of spitting of blood. Such persons cannot safely reside for any length of time on the Atlantic seacoast.

DR. F. C. SHATTUCK, of Boston, said that the author had referred to syphilitic phthisis, that is to say, a destructive process in the lung not due to tubercle, but to the syphilitic virus. It seemed to him to be a difficult matter to determine whether or not there is such an affection. Tubercular phthisis varies so much in its symptoms that the points mentioned could not be relied on. It seemed to him that the criterion would be the presence or absence of the tubercle bacillus. The author referred to Dr. Porter as having examined the sputa from one hundred cases of supposed syphilitic phthisis without finding the bacillus. That number is so large for the short time this test has been available, that it should make us a little doubtful of the methods employed. The fact that the bacillus is not found, is no proof that it is not present. The German Committee on the Collective Investigation of Disease, studied this matter last year, and came to the conclusion that so-called syphilitic phthisis had no real existence. Both syphilis and tuberculosis are common diseases, and the one offers no immunity from the other, so that we should expect to find them frequently combined in the same individual.

DR. J. H. MUSSER, of Philadelphia, had never seen a case of phthisis which he considered of syphilitic origin. In his experience in the post-mortem room he had seen only one case in which the lesions bore any resemblance to what we should expect to find in syphilitic phthisis. This was the case of a young man with syphilis and cirrhosis of the liver, due to syphilitic interstitial hepatitis. There were also syphilitic gummata in the brain,

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and the patient died of syphilitic meningitis. There were scattered through both lungs, innumerable miliary granules not at all resembling miliary tubercles. These were solid bodies made up of a yellow core, which was moderately firm, and surrounded by a ring which made up at least one-half of the nodule. The microscopical examination showed these bodies to consist of a ring of firm fibrous connective tissue, in the centre of which there were degenerating cells. He was unable to find the bacillus of phthisis, but, as had already been stated, the failure to find it, is no proof of its absence. He would not call this a case of syphilitic phthisis, but rather a case of syphilis of the lungs.

DR. E. FLETCHER INGALLS, of Chicago, had been much interested in the remarks of Dr. Shattuck, but he apprehended that most of the members had seen cases in which the syphilitic nature of the disease admitted of no question. Even if the bacilli were found, it would be no proof that the case had not originated as a syphilitic trouble, and that it had not subsequently become tubercular. He recalled one case in which the syphilitic manifestations were very prominent. There was consolidation of the lungs, particularly of the middle portion of one lung. There was a history of syphilis and distinct cutaneous lesion. The patient had been in Colorado, and returned much worse. On his return to a lower altitude, he was put on the use of iodide of potassium, and ultimately apparently recovered.

DR. J. H. MUSSER, of Philadelphia, then presented a paper on

THE TREATMENT OF THE FINAL STAGE OF PHTHISIS.

He gave a detailed account of the symptoms met with in the last stages of phthisis, and referred to the various measures which he had found useful in these cases. To relieve the high temperature, he had resorted to antifebrin with advantage. Quinine was found to act unsatisfactorily.

THE PRESIDENT announced as

THE NOMINATING COMMITTEE,

Drs. F. C. Shattuck, E. T. Bruen, Willis E. Ford, B. F. Westbrook, and W. H. Geddings.

(To be continued.)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, June 2, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. F. HUBER read a paper entitled

INTUBATION: A STUDY OF FORTY-SEVEN CASES.

As a result of his experience and observation he said that he would never advise tracheotomy only in cases in which intubation fails to afford the necessary relief. In his opinion, such a case would in the future be a rare exception. After stating that the dyspnœa is as effectively relieved by intubation as by tracheotomy, he proceeded to speak of the advantages of the former, and also referred to the origin of the procedure as proposed and practised by Bouchut in 1858. Then having referred to some practical points, derived from his personal experience, he stated that intubation had now passed through the experimental stage, and that its utility had been fully established by numerous operators in New York, Philadelphia, Chicago, and other places. Notwithstanding the gratifying results obtained, however, it had as yet received very little favor or even attention in Europe.

Of his 47 cases Dr. Huber said, 29 cases, with 11 recoveries, were in children under three years of age, and 18 cases, with 9 recoveries, in children of three years or over. Of the 11 children under three years, one was 9½ months old, one 10½ months, two 11 months, one 1 year, two 2 years, two 2½ years, and two 2 years and 8 months old. Of all the children that he had been called upon to treat who were suffering from laryngeal stenosis he had found it necessary to resort to intubation in only one out of every three or four; and he thought that it should not be employed until dangerous symptoms had supervened. He used it, in fact, in exactly the same class of cases in which he would have performed tracheotomy one year ago. Having spoken of the diagnosis of croup and the indications for surgical interference, he referred to the importance of making a careful examination of the neck and chest. He had known cases in which the dyspnœa caused by retro-pharyngeal abscess and by empyema had been supposed to be due to laryngeal stenosis. As confirmatory of the diagnosis of the latter, relative absence of pain, in uncomplicated cases, is of much value; and aphonia, with difficulty of both inspiration and expiration, is positively indicative of croup.

He then went on to speak of the various accidents and mishaps that had been met with in intubation, and the objections raised against the procedure. He referred first to the gag, and said that O'Dwyer's gag is liable to be displaced by the struggles of the child, but this is not the case with the one devised by Dr. Denhart, which he exhibited. The thread attached to the tube should be eighteen or twenty inches in length, and if not withdrawn at once, should be passed over the ear and secured. In order to avoid accidents in introducing the tube the efforts to place it in position should be short and repeated, rather than kept up uninterruptedly for any length of time. One of the most serious accidents that could occur is the pushing of dislodged membranes before the tube; and in a case of this kind Dr. Ferguson, of Troy, was obliged to resort to tracheotomy. Several deaths had been reported from this cause, and Dr. Waxham had recently devised a long tracheal forceps for the purpose of removing the membranes when this accident occurs. In a case of his own in which it happened, he gave the child brandy, with the effect of exciting a fit of coughing, which expelled both the tube and the membranes.

If at any time after the tube is introduced noisy breathing should come on, it is an indication for its temporary removal. The tube has been known to be coughed up and then swallowed. Instances have also been reported in which the tube has slipped through the larynx into the trachea; but this was when the earlier pattern of tube, with small head, was employed. The tube does not act as a foreign body when in the larynx, giving rise to choking sensations and coughing; but if it remains in position for a considerable length of time it may perhaps produce slight ulceration. This, however, does no harm.

Speaking of accidents in connection with the with-

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drawal of the tube, he said that instances had been reported in which it was pushed down into the trachea, but this had only occurred when the older pattern of tube, with small head, was employed. As to the time for removing the tube, in favorable cases, this might be done as early as the fourth or fifth day, although it is often desirable to allow it to remain longer. As a rule, however, it can be dispensed with at a much earlier date than the tracheotomy tube. If the respiration continue free the tube should generally be allowed to remain until the fifth or sixth day. If the respiration becomes noisy, however, it should be promptly removed, and afterward introduced again, if this should prove necessary. When there are diphtheritic patches discernible in the nose or pharynx it is advisable, as a rule, to leave the tube in position until they have disappeared.

In intubation, as in tracheotomy, the prognosis is more favorable when there is simple local obstruction in the larynx than in cases where there is marked constitutional infection from diphtheritic poison. No age offers a contra-indication to intubation. No positive prognosis should ever be made, however, until forty-eight hours have passed from the time the tube was introduced.

As regards medicinal treatment, Dr. Huber said that it was his practice to keep up the use of bichloride of mercury throughout the course of the disease, whether intubation was resorted to or not. He employed it, in accordance with the views of Dr. Jacobi, in doses larger than those usually recommended; giving from one-sixth to half a grain, and in some cases as much as one grain, in divided doses, during the twenty-four hours, even in children a year old. Where there was much difficulty in swallowing he gave it in the form of tablet triturate, of one-fortieth of a grain each, mixed with sugar and placed dry upon the tongue. If there were extensive diphtheritic membranes in the fauces he also employed tincture of iron and chlorate of potassium. In threatened heart-failure, he resorted to brandy, caffeine, etc. If the temperature was very high he employed antipyretics, either by the mouth or rectum. Finally, he used the steam atomizer for producing a moist vapor.

Intubation, he went on to say, possesses every advantage afforded by tracheotomy. It would also save many cases in which tracheotomy would not be permitted, as well as many which would die if the latter were performed, especially in cases in children under three years of age. Out of twelve cases in which Dr. Huber had resorted to tracheotomy, ten had proved fatal. He had also seen many cases in the hands of others in which the results were no more favorable: so that he felt warranted in contending for the superior advantages of intubation.

DR. J. O'DWYER then read a paper on

FEEDING AFTER INTUBATION OF THE LARYNX,

and exhibited tubes modified to overcome difficulty in feeding. He also showed specimens with the tube in position, and a section of the cricoid cartilage filled up with membranes, except where the tube had left an opening, the form of which was just the shape of the latter. The difficulty in swallowing, he said, was recognized by all as the most important objection to intubation, and he had long been trying various modifications in the shape of the tube in order to diminish this as much as possible. At first he tried making the heads of the tubes quite small; but, while this rendered it possible for them to slip through into the trachea, it did not render deglutition any easier.

The next modification that he made was to increase the size of the head to some extent and give the tube a greater curvature in order to avoid ulceration at the base of the epiglottis. The third modification was to make the posterior surface of the tube larger than the anterior, so as to allow the epiglottis to pass over it more completely. Next he increased the size of the head still further, so that it should fill the cavity of the larynx and prevent fluid and other foreign substances from entering around it. The fifth modification was to make the upper surface of the tube concave, so that it would adapt itself more completely to the conformation of the parts; and this modification had the effect of rendering it very easy to remove the tube. Up to the present time extraction had always proved the most difficult part of the procedure.

The last modification which he had adopted was to give to the upper portion of the tube a double backward curve, with the hope of increasing the facility of swallowing, and this, at all events, had the effect of preventing ulceration of the anterior wall of the trachea, which hitherto had been sometimes quite extensive. Any one, however, who practised intubation at all largely would find it advisable to employ a variety of tubes according to the circumstances of particular cases, and he had devised a large, short tube for temporary use in certain instances. The string could be left attached to it, and he thought it probable, on account of the large calibre of the tube, that membranes might sometimes be coughed up through it.

Notwithstanding all his modifications, Dr. O'Dwyer said that he still found about the same difficulty in swallowing present. Solids and semi-solids, as a rule, are taken much better than fluids. Food will not enter the tube if the epiglottis is normal. In a number of instances he had removed the tube in order to give nourishment, but the results were no better than when it was in position. In some cases, particularly when nephritis was present, there were nausea and vomiting, as well as anorexia. Sometimes, however, swallowing was more readily accomplished than before the insertion of the tube, on account of the relief which it afforded to the urgent dyspnœa. As a rule, the longer the tube remained in position, the easier it became to swallow. When the patient was old enough to understand he always gave instructions that drinking should be done rapidly, and that as large a quantity of fluid as possible should be taken at one time. Then, by coughing the tube could be freed from any of it that might by chance have entered. Sometimes he employed rectal alimentation, but he very seldom had to resort to the stomach-tube.

Passing on to speak of pneumonia, Dr. O'Dwyer said that, in his opinion, this might arise (1) from the presence of secretions in the lower air-passages; (2) an excess of blood drawn out of the lungs; (3) atelectasis in the severe cases in which there was an extension of the membranes; (4) the presence of a tube either in the larynx or trachea. He did not believe that food is a cause of pneumonia, as there is no evidence that food

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had ever been found in the minute bronchi. He had known a patient, an adult female, to wear a tube in the larynx for more than ten months, who not only did not take pneumonia, but who in the meanwhile recovered from bronchitis, which she had at the time the tube was put in.

He had lately devised two hard-rubber tubes for all kinds of acute stenosis of the larynx in adults; the smaller being for women and young males, and the larger for full-sized males. The principal difference between these and the metallic tubes was in regard to their weight and the size of the calibre. While a rubber tube weighed only one hundred grains, a metallic tube of the same size weighed one ounce and three-quarters, and the rubber tube was fully double the calibre of the metallic. As regards the comparative comfort of the two kinds of tubes, one patient found the metallic tube the most satisfactory, while another, who was a syphilitic and had a very sensitive larynx, preferred the rubber. In the latter case the metallic tube produced ulceration, which was not the case with the rubber one, while greater freedom of movement and facility of expectoration were also experienced with the latter.

DR. DILLON BROWN read a paper on

STATISTICAL RECORDS OF INTUBATION.

He said that there had been reported, so far as he had been able to collect them, 760 cases, by fifty-four different operators, and of these he had tabulated 502 cases. 211, or 27.07 per cent., had recovered. The average age of the children who died was 3 years and 2 months, and of those who recovered, 4 years and 1 month. In those who recovered intubation was resorted to at an average period of 2 days and 9 hours after symptoms of laryngeal stenosis had first appeared, and in those who died, at an average period of 1 day and 19 hours. In the fatal cases the average time after intubation at which death occurred was 2 days and 8 hours, and in those which recovered the average time during which the tube was worn was 5 days and 3½ hours. In 339 fatal cases the causes of death were given. Those who had performed intubation in the greatest number of cases were as follows: O'Dwyer, 78 cases; Waxham, 106 cases; Dillon Brown, 84 cases; and Huber, 47 cases.

Unavoidable accidents, Dr. Brown went on to say, were rare, and, with the exception of the one of pushing the membranes before the tube, were not important. From the use of too much force false passages had been made in two instances. The slipping of the tube down into the trachea, which had been reported in several cases, could never occur if a tube of proper size were employed. In two cases the tube had been passed into the œsophagus, instead of the larynx; but there is no reason why this mistake should happen if suitable care was taken. In order to avoid the possibility of pushing membranes before the tube, as far as practicable, it should be pressed well down and held firmly in position with the finger until the obturator had been removed. Coughing up of the tube is a source of danger, but this can, as a rule, be avoided if a tube with a sufficient retaining swell is used. If there is paralysis of the muscles, however, the accident is liable to occur, notwithstanding the sufficient retaining swell. As to the causes of death after intubation, the extension of the membranes to the bronchi is the most frequent, and he believed that pneumonia, when present, was secondary in character.

DR. W. P. NORTHRUP read a paper on the

PATHOLOGICAL ANATOMY OF THE RESPIRATORY TRACT AFTER DEATH FROM LARYNGEAL DIPHTHERIA AND INTUBATION.

In the paper on this subject, which he read before the Academy in December last, he said he had reported 87 fatal cases. Since that time 20 additional fatal cases had occurred at the Foundling Asylum; so that he had now altogether 107 cases on record. The cause for this large number during so short a period as four months was the occurrence of diphtheria in connection with a fatal epidemic of measles and scarlet fever. The severity of the outbreak was shown by the fact that all the fatal cases had pneumonia, and thirteen of them nephritis. In his former paper he stated that he had never met with ulcers of the trachea, but in the twenty cases, now reported for the first time, there were deep ulcers, laying bare the rings of the trachea, in no less than five instances. (The specimens from these cases were presented.) He had not as yet met with ulceration of any consequence caused by the head of the tube —nothing more, in fact, than necrosis of the epithelium. He had never seen any indication of aspiration-pneumonia, as it was called, due to the entrance of milk or other fluid into the finer bronchi.

DR. IRWIN H. HANCE reported a

CASE OF LARYNGOTOMY AFTER INTUBATION

which occurred at the Nursery and Child's Hospital, and the patient, who was twenty months old, and suffering from scarlet fever and diphtheria, twice coughed up the tube. After it had been introduced the third time the tube became obstructed and had to be removed. At this time the child was so exhausted that artificial respiration was resorted to for a while. The tube was then inserted for the fourth time, and again it filled up with mucus and had to be removed. After being introduced a fifth time, it again became obstructed, and was finally coughed up. The stenosis still continuing, laryngotomy was performed, at the crico-thyroid membrane, and complete relief from the dyspnœa was at once afforded. The child died of the scarlatinous trouble the next day.

In this case, he said, the tubes were thoroughly tried, and were found to be utterly valueless. Their failure, he thought, was probably due either to the large quantity of tenacious mucus present or to the dislodgement of diphtheritic membrane. It was a question whether tracheotomy should not have been resorted to earlier, before the child had become so exhausted by the condition present and the repeated introduction of the tube.

In conclusion, Dr. Hance alluded to other cases in which laryngotomy or tracheotomy had to be performed after a trial of intubation. Nine of these cases had been reported, including his own, in which there were three deaths and five recoveries, while in one instance the child was still under treatment at the time the report was made. The operation had been performed or advised under the following circumstances:

1. Irritability of the larynx.

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2. When membranes were pushed down before the tube.

3. In plugging up of the tube with dislodged membrane.

4. When there is a return of the dyspnœa with absence of the tube from the larynx.

5. When the tube becomes wedged in the larynx.

As to the laryngeal spasm, he had found that this could usually be combated with belladonna, nitre, and chloral. Practically, the only condition calling for tracheotomy was the obstruction of the tube by membranes, and this was a very rare occurrence. The attempt had been made to remove the membranes with the forceps. Finally, he said that he would advise resorting to tracheotomy only after intubation had failed.

DR. O'DWYER, in reply to a question by the President, stated that in his later cases he had resorted to tracheotomy in only one instance after intubation. He had met with such bad results in his own experience with this operation that he was not disposed to hope for much from it. As to removing membranes with the forceps, the subglottic division of the tube is of such narrow calibre that it is practically impossible to use this instrument in it, and he had, therefore, devised a flexible apparatus somewhat on the principle of the umbrella probang for this purpose. He knew of no wedging in the larynx that could occur except such as is sometimes met with when a tube with a small head is used. Like Dr. Northrup, he had never seen any evidence of the so-called aspiration-pneumonia arising from the entrance of food into the bronchi. The secretions, he believed, are the source of the pneumonia that is found after intubation, there being aspiration of these into the finer bronchial tubes. It is due primarily, however, to the presence of the tube, because the latter impairs the patient's power of expulsion; the secretions, under these circumstances, not being gotten rid of with the same ease as through the normal larynx.

THE PRESIDENT said that he was much pleased to hear from Drs. O'Dwyer and Northrup that they had never seen any reason to believe that pneumonia originates from the presence of food. He would like to inquire of Dr. Northrup whether lobar pneumonia is of frequent occurrence, and, if so, whether this is found especially in cases of sepsis.

DR. NORTHRUP replied that in the eighty-seven cases previously reported by him, twenty-seven were believed to have died from extension of the diphtheritic membrane. In a larger proportion of these there were found membranes extending from the tip of the nose to the finest bronchi of the lungs. Bronchial diphtheria, with œdema, was a marked feature at the autopsies. Pneumonia, when it did occur, was of late origin. It affected both lungs, and was lobular, not lobar, in character. In not more than one-fourth of the cases could it be said to have been the cause of death.

DR. CAILLE said that it was too early as yet to speak a final word as to the merits of intubation. Many of the cases published have been reported in such a way as to render them of no practical value. In comparing this procedure with tracheotomy in his own experience, he found that he had performed tracheotomy in twenty-one cases, with five recoveries, and intubation in sixteen cases, with six recoveries. In his cases of intubation diphtheritic membranes were observed on the nares and pharynx in nine instances. Most of them were seen in consultation, and, as a rule, intubation was undertaken rather late. He believed that all would have died without surgical interference, and that one which died would have recovered if intubation had been practised earlier. The cause of death after intubation he had found to be catarrhal pneumonia in a majority of his fatal cases. It was a fact that most of the children who died had taken liquids, and of late he had allowed only solids chopped fine, with ice to allay thirst. Since he had adopted this course his results had been better.

In general, he said, intubation is to be prefered to tracheotomy in the majority of cases. When the pharynx and nares are affected, intubation is, as a rule, preferable to tracheotomy, especially when the after-treatment of the latter cannot be carried out satisfactorily. Tracheotomy is preferable in some cases, hopeless without operation, provided the surgeon can operate and carry out the after-treatment under the most favorable conditions. These statements apply to intubation with the present style of tubes.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 25, 1887.

THE VICE-PRESIDENT, LEWIS A. STIMSON, M.D., IN THE CHAIR.

MOTOR AND SENSORY PARALYSIS FOLLOWING FRACTURE OF THE CLAVICLE.

DR. L. A. STIMSON presented a patient, a man, twenty-nine years old, with the following history: April 12, 1887, he fell from a height of about eight feet, striking upon the outer aspect of his left shoulder; he remained unconscious for an hour, and was then able to walk to the Presbyterian Hospital, a distance of about a mile. On examination there was found a simple fracture of the left clavicle at the junction of the outer and middle thirds without displacement, the symptoms being localized pain on pressure and crepitation when the fragments were moved.

But a more singular and striking phenomenon was the condition of the left arm, which hung powerless by the side, and which, on examination, showed extensive sensory and motor paralysis without recognizable injury to its skeleton or soft parts. There was loss or diminution of tactile sensibility over an area beginning a little above the lower margin of the deltoid muscle and covering the posterior surface and external half of the anterior surface of the arm and forearm, the radial half of the hand, the thumb, and index finger.

There was complete motor paralysis of the external scapular muscles, the deltoid, triceps, biceps, coracobrachialis, and brachialis anticus, and the supinator and extensor muscles of the right forearm. The extensors of the middle and terminal phalanges of the fingers (the interossei and lumbricales) were not involved.

The arm could not be actively raised, abducted, or rotated; the elbow could not be flexed or extended, the forearm could not be supinated, and the only movements of the parts below the forearm that were possible were flexion of the wrist and fingers, and extension of

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the distal phalanges. The muscles reacted well to the faradic current.

During the six weeks that have elapsed since the accident the paralysis has persisted, and the limb has wasted notably, the wasting including the supra- and infra-spinatus muscles.

The only recorded cases of which I have knowledge in which a fracture of the clavicle has been immediately followed by paralysis of the arm, are those of Earle[1] and Gibson.[2] In the former, a sailor fell from the main yard, broke his left collar-bone and was rendered unconscious for some time; when first seen by Earle, two days later, the arm was found entirely useless and paralyzed. Three weeks later sharp pains were felt, especially at the finger-tips, whenever the limb was moved, and occasionally when it was at rest; there was complete loss of sensation throughout the limb. Improvement followed the use of electricity and blisters. He mentions the gradual recovery of power by the muscles of the scapula and by the pectoralis major.

In Gibson's case the falling branch of a tree caused a comminuted fracture of the collar-bone and bruised the soft parts so severely that violent inflammation followed. The fragments were depressed behind and below the line of the first rib, and the brachial plexus was compressed, in consequence of which complete paralysis and atrophy of the entire limb followed.

In two cases reported by Blassius,[3] in which the patients were first seen one or more years after the accident, fracture at or near the junction of the outer and middle thirds of the clavicle had united with marked angular displacement and approximation of the shoulder to the thorax, and in each the deltoid was atrophied.

A few other cases have been reported in which paralysis of the arm has been observed after an interval, and has been attributed to the pressure of the dressings, especially to that of an axillary pad.

In Gibson's case the attribution of the paralysis to pressure of the depressed fragments upon the brachial plexus may be accepted as probably correct, but in the report of Earle's case there is nothing to show that either fragment was exceptionally displaced, and in this, as also in mine, the implication in the paralysis of the suprascapular nerve, which is given off above the level of the clavicle from the cord formed by the fifth and sixth cervical nerves, seems to be almost a positive proof of some other cause. What that other cause may be is not indicated, so far as I can see, by any symptom that can guide to a choice among the several possible causes which suggest themselves, and a search through the works of a number of authors has not yielded any information. In Weir Mitchell's *Injuries of the Nerves* the only suggestion of the existence of such a class of cases is contained in the following portion of a sentence on p. 99: "Falls on the shoulder or on the hand being competent to cause palsies of the arm, we may expect to meet with the latter even in such cases of dislocation as put out of the question any possible compression of the nerves by the head of the humerus;" but he dismisses the question of pathology and etiology with the phrase that "in the whole it is more in accordance with modern views to see in the atrophy a consequence of nerve lesion, of which rheumatic or scrofulous inflammations of the joint are so apt to furnish examples."

The suggestion contained in the first of these quotations, that certain paralyses observed in connection with dislocation are not due to compression of nerves by the displaced bone, is one that deserves attention in connection with the prognosis and treatment. Nerves that are disabled by pressure promptly regain, as a rule, their power of conducting impulses after the removal of the cause, but those that are due to the unknown conditions assumed to exist in the present and similar cases are sometimes persistent.

DR. BRIDDON asked if there was any reason to think that the patient was unconscious *before* he fell. The reporter replied in the negative.

DR. GERSTER asked if the patient might not have struck the object upon which he fell in such a way as to cause traction on the nerves.

DR. STIMSON replied that the man struck directly upon his neck and shoulder, in the manner described.

DR. GERSTER cited the case of a boy whom he had presented to the Society two or three years before. The patient had been run over and sustained a fracture of the head of the humerus and the neck of the scapula with extensive effusion. There was almost complete paralysis of the limb, but recovery was subsequently perfect.

DR. A. G. GERSTER read a paper entitled

EXSECTION OF THE KNEE-JOINT FOR TUBERCULOSIS.

(See page 650).

After finishing his paper, the author added that he did not believe that any blood was saved in operations on the extremities by bandaging the limb previous to applying the constricting band. By elevating the limb for a few minutes, gravity assisted in depleting the vessels to some extent; then the constriction was applied. The blood left the arteries and collected in the veins. This was of great advantage to the surgeon, because he could, by making pressure on the part with both hands, always locate the vessels in order to apply the ligatures. Only a small amount of blood could escape, as the rest is kept back by atmospheric pressure. The reader objected to the use of Esmarch's bandage, for the following reasons: 1. Amputations and exsections are frequently performed in cases of acute or chronic infectious disease, where the application of the bandage tends to force the septic matter into the general circulation; 2. The avoidance of this danger more than compensates for the extra amount of blood that may be lost.

DR. STIMSON said that his experience in four or five cases had been similar to that of the reader. He had noted a recurrence of the disease in two cases, one that of an adult, the other that of a boy of fifteen; a complete excision was required later. The field of usefulness of the operation must be limited. A special objection to excision in young subjects arises from the consequent arrest of the growth of the limb, and it is important to remember that a cure may sometimes be obtained by immobilization and pressure, without resort to the knife. He cited the case of a child two years of age, whose left knee had presented marked evidences of tuberculous disease. A quantity of pus was aspirated,

[1] Earle: Med.-Chir. Trans., vol. 7, p. 175, 1816.

[2] Gibson: Princ. of Surg., 6th ed., vol. 1, p. 271.

[3] Blassius: Quoted by Gurlt, Knochenbrüche, vol. 2, pp. 602–605.

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the limb was fixed in a plaster-of-Paris splint, and three weeks later the symptoms were much relieved. A leather splint was then applied and was worn all winter. He saw the child six weeks before and all evidences of disease had disappeared, the joint being freely movable.

DR. GERSTER agreed with the speaker regarding the propriety of expectant treatment in the case of children, as the results are generally much better than when exsection is performed. He would only exsect in cases in which there had been prolonged suppuration, or where orthopædic treatment had been neglected. He had seen a number of cases that had been treated by orthopædic surgeons on the expectant plan, and was surprised at the good results obtained. We cannot be too radical in our treatment of tuberculous joints in adults, as hospital patients are too poor to submit to a long course of orthopædic treatment. By excision a cure is effected in six weeks instead of several months. All the cases reported had shown that it is better not to wait until fistulæ have formed and new complications have arisen.

NEWS ITEMS.

DISTILLED WATER IN EYE LOTIONS.—Physicians and pharmacists generally assume that distilled water is the best means of dissolving or diluting drugs, and in the great majority of cases this is undoubtedly the case. As a rule, the solvent should be absolutely pure and neutral in itself; but in some instances this very neutrality of the solvent may interfere with the intended action of the substance dissolved. A curious illustration of this exception to the rule was given some time ago by an eminent English oculist in a communication to a London journal. Our readers know that an aqueous solution of boracic acid is one of the most useful of eye lotions; but we remember that, as prescribed for the writer several years ago by one of the best oculists in this city, the order was for "ten grains in *distilled water*." Our English expert, however, says he has found that, when the lotion is made of distilled water, its use is attended with some discomfort and smarting; and, what is more singular, the irritation is even greater when there is no boracic acid in solution. "Anybody," he says, "can verify for himself that a drop of distilled water in the eye seems to be a most unpleasant and foreign element."

The simple explanation of this is, that well or spring water contains salts in solution which make it slightly alkaline, thus rendering it somewhat more neutral to the conjunctiva, a tissue ordinarily bathed in the lachrymal secretion, which contains about one per cent. of solids, chiefly chloride of sodium, or common salt. The addition of two grains and a half of this salt to the ounce of distilled water renders any lotion for the eye more soothing and more beneficial. This, our friend says, he has verified by experience; and we commend the fact to the attention of oculists and others interested. —*Popular Science News*, May, 1887.

OHIO STATE MEDICAL SOCIETY.—The forty-second annual meeting will be held at Toledo, Ohio, on June 15, 16, and 17, 1887. The officers of the Society are:

President.—Thomas McEbright, of Akron.

Secretary.—G. A. Collamore, of Toledo.

A TRAINING SCHOOL FOR COLORED NURSES.—The Atlanta University for colored people has established a training school for nurses, which is doing a good work.

NEW ORLEANS POLYCLINIC.—The New Orleans Polyclinic, a school for the special instruction of students and practitioners, has been thoroughly organized. The course will open the first Monday in April, 1888.

PROF. BILLROTH'S CONDITION.—The Vienna correspondent of the *Lancet*, writing on May 22, 1887, describes the distinguished surgeon's condition as follows:

The state of Prof. Billroth, who is suffering from bronchitis capillaris and pneumonia catarrhalis, was very serious on Friday last. There was considerable debility of the heart's action, and a catastrophe was feared; but after inhalations of pure oxygen the patient had rallied by the next day. The bulletin just published is confirming the hope of a speedy recovery of the illustrious surgeon. He felt himself greatly relieved, the appetite was good, and he slept soundly for some hours.

THE ILLNESS OF THE CROWN PRINCE OF GERMANY.—We obtain the following particulars of the Crown Prince's case from the *British Medical Journal* of May 28, 1887:

His Imperial Highness has been suffering from slight hoarseness since the beginning of the year; indeed, some people think that his voice has never been quite clear since his visit to Italy last autumn. He was treated in the ordinary way by Dr. Wegner, his Physician in Ordinary (who is also Surgeon-General of the Garde-du-Corps, and Inspector-General of the Hospitals of the Army), till the month of March, when Professor Gerhardt was consulted. Professor Gerhardt examined the Crown Prince's throat carefully, and found a small growth on the left vocal cord, and used the electrocautery on several occasions with marked benefit and relief to His Imperial Highness. The growth had almost entirely disappeared toward the end of March; and, owing to the Crown Prince's constant occupation with the festivities connected with the birthday of the Emperor William, the treatment was then suspended. As some of the growth still remained, however, the Crown Prince was advised to go to Ems in April, where he took the waters most diligently for some weeks. During his residence there and on his return reports were carefully circulated in the newspapers that His Imperial Highness had benefited considerably, and had almost recovered the former use of his voice. Exactly the contrary was the truth. Some increase of the growth was found to have taken place, and the members of the Royal family in Berlin and London were beginning to feel really anxious. Professor Bergmann was then asked to see His Imperial Highness with Professor Gerhardt, and later on Professor Tobold, of Berlin, the well-known specialist in diseases of the throat, was also called in. These were subsequently joined by Dr. von Lauer, the Emperor's Physician in Ordinary and Chief of the Army Medical Department.

The tendency of the growth to enlarge was then fully established, and it became a question whether the new formation could be removed by the internal method, or whether a more extensive operation was necessary.

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Under these circumstances it was thought desirable, before resorting to tracheotomy, to have the advantage of the unique experience of Dr. Morell Mackenzie, who was summoned from London, and arrived in Berlin on Friday afternoon, May 20th. The same evening a consultation was held, and Dr. Mackenzie was asked to remove a portion of the growth with the object of ascertaining its exact nature. The following morning Dr. Mackenzie succeeded, in the presence of Drs. Gerhardt, Tobold, and Wegner, in removing a small portion of the growth, which was immediately handed over to Prof. Virchow for microscopic examination. Prof. Virchow pronounced it not to be of malignant structure, all that was found being the inflammatory products of irritation.

This decided the diagnosis, and the treatment also. It is hoped that it may be possible to remove the base of the growth by forceps or destroy it by cautery.

BALTIMORE ACADEMY OF MEDICINE.—At the last meeting of the Baltimore Academy of Medicine, held May 31, 1887, the following officers were elected:

President.—W. C. Van Bibber, M.D.

Vice-President.—B. B. Browne, M.D.

Secretary.—C. C. Bombaugh, M.D.

A SUCCESSFUL SANGER'S OPERATION.—GUSSEROW reports, in the *Berliner klinische Wochenschrift* of May 16, 1887, a successful case of Sänger's operation in a rachitic pelvis, whose *conjugata vera* was 5.5 cm. (2⅛ inches). The case was complicated by a mild intoxication from corrosive sublimate, but mother and child recovered perfectly from the operation. The child perished on the twenty-sixth day of its life, from gastro-intestinal catarrh.

SCHRÖDER'S MONUMENT.—The Committee appointed to secure a proper memorial to Schröder have decided to place his marble bust in the Frauen Klinik.

TRANSPORTATION OF PATIENTS TO HOSPITALS.—The Berlin authorities have investigated the dangers attending the ordinary methods of transporting the sick, and have ordered the establishment of four stations, to which telegraphic messages may be sent when such conveyance is needed. Penalties are laid upon the transportation of those ill with infectious diseases in open wagons, and a supervision of the transportation and disinfection of such patients and their baggage will be undertaken by the police.

COURSES FOR PRACTISING PHYSICIANS IN BERLIN.—The autumn courses will begin September 26, and last until the end of October. A summer course for practitioners is given at Jena.

LARYNGOLOGY IN BERLIN.—The Medical Faculty are about to create a new Extraordinary Professorship of Laryngology in connection with a Polyclinic for Throat and Nasal Affections, for which room has been taken in a private house in the Luisenstrasse. The first occupant of the chair will probably be Professor Bernhard Fränkel. A series of vacation courses intended for practitioners is being arranged. These are to begin on September 26th, and will continue till the end of October.—*Lancet*, May 21, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 4, 1887.

BRANSFORD, JOHN F., *Surgeon.*—Ordered to the Smithsonian Institution at Washington, D. C.

TRYON, J. RUFUS, *Surgeon.*—Detached from the U. S. S. "Quinnebang," and ordered home.

SIEGFRIED, CHARLES A., *Surgeon.*—Ordered to the U. S. S. "Quinnebang."

MARTIN, WM., *Assistant Surgeon.*—Detached from the U. S. S. "Pinta," and ordered home.

FITTS, HENRY B., *Passed Assistant Surgeon.*—Detached from the Receiving Ship "Vermont," and ordered to the U. S. S. "Pinta."

FIELD, JAMES G., *Assistant Surgeon.*—Ordered to the Receiving Ship "Vermont."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JUNE 4, 1887.

GOLDSBOROUGH, C. B., *Surgeon.*—Detailed to represent the service at the meeting of the American Medical Association at Chicago, Ill., June 6, 1887. June 1, 1887.

BANKS, C. E., *Passed Assistant Surgeon.*—When relieved, to rejoin station at Boston, Mass. May 23, 1887.

NORMAN, SEATON, *Assistant Surgeon.*—When relieved, to rejoin station at Cape Charles Quarantine. May 26, 1887.

OFFICIAL LIST OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM MAY 24 TO JUNE 6, 1887.

HUBBARD, V. B., *Major and Surgeon.*—Granted leave of absence for one month, to take effect on or about June 1, 1887.—*S. O. 119, A. G. O.*, May 24, 1887.

BURTON, H. G., *Captain and Assistant Surgeon.*—Granted two months' leave of absence on surgeon's certificate of disability.—*S. O. 107, Division of the Atlantic*, May 25, 1887.

FRYER, B. E., *Major and Surgeon.*—Granted two months' leave on account of sickness; permission to apply for an extension.—*S. O. 28, Division of the Pacific*, May 28, 1887.

BROWN, PAUL R., *Captain and Assistant Surgeon.*—Granted leave of absence for four months.—*S. O. 126, A. G. O.*, June 2, 1887.

PERLY, H. O., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Maginnis, Montana Territory, and ordered for temporary duty at Fort Snelling, Minnesota.—*S. O. 49, Department of Dakota*, May 23, 1887.

APPEL, A. H., *Captain and Assistant Surgeon.*—Granted leave of absence, on surgeon's certificate of disability, six months.—*S. O. 127, A. G. O.*, June 3, 1887.

WOOD, LEONARD, *First Lieutenant and Assistant Surgeon.*—Ordered for temporary duty at Fort Huachuco, Arizona Territory; relieved from duty at Headquarters Department of Arizona.—*S. O. 126, A. G. O.*, June 2, 1887.

SUTER, WM. N., *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered for temporary duty at Washington Barracks, D. C.—*S. O. 122, A. G. O.*, May 27, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

THE NATURE AND TREATMENT OF CHOLERA INFANTUM.[1]

BY VICTOR C. VAUGHAN, M.D., PH.D.,
PROFESSOR OF PHYSIOLOGICAL CHEMISTRY IN THE UNIVERSITY OF MICHIGAN.

PROBABLY a more correct title for this paper would be the nature and treatment of summer diarrhœa; for cholera infantum is now regarded by some of the best authorities as differing in degree only from the milder diarrhœa of infancy. The importance of this class of diseases is well understood by physicians generally. It is estimated that in the hospitals of New York City there are treated each summer not less than 25,000 cases of diarrhœal disease among children. Add to this those that are seen in private practice, and the number must be very large. It certainly would be safe to say that the average number of cases of summer diarrhœa in children coming under treatment annually in the United States is not less than a quarter of a million.

The causes usually enumerated by writers on these diseases are heat, atmospheric conditions, and changes in the food. Of these causes, great stress has been placed upon the first two. However, heat should affect young children more than older ones; but Holt states that, of 431 of his cases, only 12.8 per cent. were under six months, while 59.5 per cent. of the cases occurred between the ages of six months and two years. Holt says, "The explanation is obvious. Under six months the great majority of the children of the poorer classes receive breast milk either exclusively or principally, while from that time on they are accustomed to be fed from the table, or on articles totally unfitted for infantile digestion. It is a striking fact that Hope, of Liverpool, brings out in his statistics of 591 fatal cases of summer diarrhœa in children under two years of age, that only 28 had the breast exclusively; while Ballard states that, of 341 fatal cases occurring in Liecester, only 2 per cent. of the children had no food but the breast."[2]

Now there is no reason why heat and miasmatic influences should not affect those that feed at the breast as well as those that are brought up by artificial feeding, if the food has nothing to do with the production of the disease, as some few contend. That heat and atmospheric impurities have much to do with the causation of the diarrhœa I am ready to admit; but their chief evil effects are upon the food of the child. The demonstration of this now amounts almost or quite to a certainty. Three years ago the writer discovered in poisonous cheese a ptomaine which produced nausea, vomiting, and diarrhœa. Later the same poison was found in ice-cream, and in milk. The poison has now been isolated by as many as five chemists, and its chemistry and the conditions under which it develops, as well as its action, are fairly well understood. Chemically, the poison is diazobenzol,[1] which may be made artificially by the action of nitrous acid gas at a low temperature upon the nitrate, butyrate, or other salt of anilin. It is decomposed when heated with water to near the boiling-point. It is developed in milk by the growth of a germ, which multiplies very rapidly when the conditions are favorable. These favorable conditions consist principally of exclusion of air, or the presence of a limited supply of air, and a comparatively warm temperature, the germ developing most rapidly at about 98° F. If milk be placed in cans, and tightly closed as soon as it is drawn from the animal, and then be kept warm, the conditions for the development of the poison are favorable.

A nice illustration of this was furnished by a case occurring at Long Branch, N. J., and reported by Drs. Newton and Wallace.[2] A number of persons at the hotels was poisoned by milk. Investigation showed that the cows were healthy, their food good, and their pasture and stables all in good sanitary condition. The milking was done at the usual hours of midnight and noon. The milk drawn at midnight was cooled by being left in cans surrounded by water until morning, when it was sent to the hotels. This milk never produced any unpleasant effects. The noon milk was placed in closed cans as soon as drawn, with all the animal heat still in it, and carted a distance of eight miles during the very hot days of August. This milk was poisonous, and from it Drs. Newton and Wallace separated tyrotoxicon.

Of course, uncleanliness would increase the tendency of the milk to decompose, and it might afford the means of introducing the germ into the milk. Feeding the cow upon improper food, such as swill and refuse from breweries, would also render putrefactive changes more likely to occur.

Comparatively large doses of this poison, from one to one and a half grains, administered to cats, cause violent retching and purging, with death within from one-half to two hours. With these large doses vomiting is impossible, on account of the great constriction of the throat; but the retch-

[1] Read before the Michigan State Medical Society, May 13, 1887.

[2] New York Medical Journal, January 29, 1887.

[1] Since the preliminary report on the chemistry of tyrotoxicon (THE MEDICAL NEWS, April 2, 1887), the writer has made an ultimate analysis of the salt obtained by the action of potassium hydrate on tyrotoxicon, and found it to be identical with the double hydrate of potassium and diazobenzol.

[2] THE MEDICAL NEWS, September 25, 1886.

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ing is so violent that severe congestion of the lungs results. With smaller doses, about one-third of a grain, severe vomiting and purging are induced. The first stools are fecal; but the subsequent ones consist of clear serum, are rice-water like in appearance, and alkaline in reaction. The administration of small doses each day keeps up the vomiting and diarrhœa, leads to rapid emaciation and death from exhaustion. In other words, it establishes a cholera infantum condition. The similarity to cholera infantum does not cease with the symptoms induced and the death of the animal; but the post-mortem condition agrees exactly with that observed in children after death from cholera infantum. The mucous membrane of the stomach and small intestine is soft and blanched. We would expect, after so much vomiting and purging, to find this mucous membrane congested, or at least reddened; but that such is not the case I have demonstrated by repeated post-mortem examinations of cats, dogs, and guinea-pigs poisoned with tyrotoxicon.

Ehrenhaus says of the pathological anatomy of cholera infantum, "Generally the mucous membrane of the alimentary canal is pale and free from blood."[1]

Here we have the evidence for believing that this poison is an important factor in the causation of cholera infantum and similar diarrhœas of children, the violence of the attack varying with the amount of the poison present. When we remember that these diseases are most prevalent among the poor classes of our large cities, where fresh milk is almost unknown, we can readily understand their frequency. By such people milk is often not obtained until it has begun to sour; then it is kept at a high temperature, and often in a most foul atmosphere, and we all know something of the readiness with which milk takes up bad odors. This milk is then eaten by the little ones, who are weakened by poverty and everything that poverty means; insufficient food generally, and that of the poorest quality; insufficient clothing, insufficient and vitiated air. With these facts before us, it is not surprising that in all our large cities thousands of children die annually from the summer diarrhœas. Moreover, in our country places, how little attention is given to the food of children, we all know from actual observation. Cows stand and are milked in filthy barns and yards. The udders are generally, so far as my observation goes, not washed before the milking; the vessels for the milk are frequently found not as clean as they should be. Then there are the thousands of children that must draw their sustenance from bottles, the cleansing of which is in many cases not properly attended to. Crusts of decomposing milk form around the neck of the bottle, in the tube and nipple, and lead to the rapid decomposition of the entire contents of the bottle. I think that one of the most important advantages to be secured to breast-fed children arises from the lessened danger of infection of the milk with germs which may produce poisonous ptomaines.

I would not claim that decomposed milk is the sole cause of the summer diarrhœas of children; nor would I claim that tyrotoxicon is the only poison that may be developed in milk. It is *only one of a large class of bodies which are produced* by putrefaction, and many of these are cathartic in action.

But will this knowledge concerning the development of poisons in milk and other foods aid us in the prevention and treatment of these diseases?

Preventive measures will consist for the most part in attention to diet, and especially to milk. I have drawn up the following rules concerning the care of milk:

1. The cows should be healthy, and the milk of any animal which seems indisposed should not be mixed with that from the perfectly healthy animals.

2. Cows must not be fed upon swill, or the refuse of breweries, or glucose factories, or any other fermented food.

3. Cows must not be allowed to drink stagnant water; but must have free access to pure, fresh water.

4. Cows must not be heated or worried before being milked.

5. The pasture must be free from noxious weeds, and the barn and yard must be kept clean.

6. The udders should be washed, if at all dirty, before the milking.

7. The milk must be at once thoroughly cooled. This is best done by placing the milk can in a tank of cold spring water or ice-water, the water being of the same depth as the milk in the can. It would be well if the water in the tank could be kept flowing; indeed, this will be necessary, unless ice-water is used. The tank should be thoroughly cleaned every day, to prevent bad odors. The can should remain uncovered during the cooling, and the milk should be gently stirred. The temperature should be reduced to 60° F. within an hour. The can should remain in the cold water until ready for delivery.

8. In summer, when ready for delivery, the top should be placed on the can and a cloth wet in cold water should be spread over the can, or refrigerator cans may be used. At no season should the milk be frozen; but no buyer should receive milk which has a temperature higher than 65° F.

9. After the milk has been received by the consumer, it should be kept in a perfectly clean place free from dust, at a temperature not exceeding 60° F. Milk should not be allowed to stand uncovered, even for a short time, in sleeping or living rooms. In many of the better houses in the country and villages, and occasionally in the cities, the drain from the refrigerator leads into a cesspool or kitchen-drain, this is highly dangerous; there should be no connection between the refrigerator and any receptacle of filth.

10. The only vessels in which milk should be kept are tin, glass, or porcelain. After using the vessel it should be scalded, and then, if possible, exposed to the air.

With the attention demanded by these rules given to milk, it will become more valuable as a food, and the development of poisons in it before its introduction into the body will certainly be prevented.

[1] Real-Encyclopædie der gesamten Heilkunde, B. ii. S. 436.

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But in the prevention of summer diarrhœas, attention to the food must not stop with its introduction into the body. The ferment which produces tyrotoxicon is widely distributed, and it only awaits conditions suitable for its development. We do not know exactly what germ it is that produces this poison; but it is either the butyric acid ferment, or some ferment which is frequently developed along with the bacillus butyricus; because I have found that if some butyric acid ferment be prepared according to the method usually followed in making butyric acid, and milk be inoculated with this and allowed to stand at the temperature of the body for a few hours or at the ordinary temperature of the room for several days, the poison will appear. Moreover, as is well known, the bacillus butyricus grows best in the absence of air—we have already seen that the exclusion of air favors the development of tyrotoxicon. We are aware of the fact that the butyric acid ferment frequently does develop in the stomach. Therefore, I think that the prevention of these diseases necessitates some attention to digestion. If the food lies in the stomach or intestine undigested, putrefactive changes will occur there.

During the hot months, children which are allowed to take food at will, often drink large quantities of milk simply for the purpose of quenching thirst. Especially is this true when the parent forgets that a child would sometimes relish a drink of good water. I feel that this overloading of the stomach with milk, caused by thirst, often is of no little detriment. It is hardly necessary to specify in regard to other ways in which attention should be given to the digestive organs of children. Those that partake of other foods with their milk should be allowed only the most wholesome articles, and these should be in perfect condition. Moreover, the depressing effects of extreme heat upon the nervous system, and its consequent injury to digestion, should always be borne in mind.

Now we come to the discussion of the curative treatment of these diseases. The first thing to do is to stop the administration of milk in any form. The ferment is present in the alimentary canal, and giving the best of milk would simply be supplying the germ with material for the manufacturing of the poison. This no-milk treatment is not by any means a new idea. It has been taught for some years by a few of the best authorities; but it has not been sufficiently insisted upon. Moreover, the reason for it has not been hitherto understood. It was believed in somewhat of a vague way, that the digestive organs lose their capability of digesting milk, and experience showed that the exclusion of milk led to improved results. But now that we know that a powerful poison is formed from the putrefaction of milk, the necessity of its exclusion must become apparent to all. I reported last year a case which is so applicable here that I must be pardoned for quoting it in full. If the child had been an animal upon which I wished to experiment, I could hardly have selected conditions more favorable.

"July 30, 1886, about 1 P.M., I was called to see the seven months' old babe of Mr. B. I found that the child had been vomiting quite constantly for some three hours. It had also passed watery stools some six or seven times. The eyes were sunken, skin cold and clammy, and pulse rapid and small. I diagnosticated cholera infantum. During the preceding night, the child had seemed as well as usual, and had taken nourishment freely from the mother's breast. Early in the morning it had been given a bottle of cow's milk, and soon thereafter the nausea and vomiting began. Later, as stated above, the child began to purge. The mother furnishing an insufficient supply of milk, it had been the habit to give the child cow's milk several times a day. I prohibited the further use of milk, both that from the mother and from the bottle, and substituted meat preparations and rice water as foods. I also prescribed pepsin, bismuth subnitrate, chalk mixture, and camphorated tincture of opium.

"The cow's milk which had been furnished the child was from an animal kept by one of the neighbors. On the evening of the same day that the child was taken sick, I obtained two quarts of the morning's milk of this animal. The milk had the appearance of very rich cream, being of a yellow tint throughout. This milk was allowed to stand through the night of the 30th in the ice-box of a refrigerator. On the morning of the 31st I began the analysis. After pouring the milk from the pitcher, there remained in the vessel about two ounces of a fluid the color of port wine. Microscopical examination of this fluid showed the presence of pus and blood corpuscles. The blood was also detected by obtaining the characteristic bands of oxyhæmoglobine with the spectroscope. The milk, which had already coagulated, was filtered. The strongly acid filtrate was rendered feebly alkaline with potassium hydrate, and then agitated with absolute ether. After separation, the ether was removed with a pipette, and allowed to evaporate spontaneously. This residue was dissolved in distilled water, and again agitated with ether. This ethereal solution left, after spontaneous evaporation, a residue which had a slightly brownish tint. I did not obtain the crystals of tyrotoxicon, doubtlessly owing to this trace of impurity; but the residue had the odor and taste of tyrotoxicon. This residue, dissolved in distilled water and given to a cat, produced retching and vomiting.

"That tyrotoxicon was present in the milk taken by the child shortly before the beginning of illness there now could be no doubt. It is true that the milk was abnormal in other respects also, inasmuch as it contained pus and blood.

"After the withdrawal of all milk and the use of the medicinal agents mentioned above, the child began to improve, and by the afternoon of August 1st it seemed so well that it was allowed a bottle of good cow's milk (from another animal); but soon after taking this milk it again began to vomit and purge. Milk was again withheld, and the same medicinal treatment resorted to. This attack was slight, and after it the child continued to improve until the night of August 4th, when the grandmother, who 'knew more about raising babies than the doctor,' fed the child bountifully upon milk. Again the vomiting and purging began, and it was more than a week before all symptoms of gastro-intestinal irritation had disappeared. About the 15th of August milk was again allowed, at first in small quantity, and this seeming to have no harmful effect, more liberal quantities were given. The child has continued well since."[1]

That my experience in this is not unique will be made evident by the following quotation from a

[1] Proceedings of the Michigan State Board of Health, October, 1886.

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recent paper by Dr. L. Emmet Holt, physician to the New York Infant Asylum, who writes as follows:

"In children under two years of age, not fed at the breast, it is better to withhold milk entirely. This has been a subject of careful investigation during the past summer at the New York Infant Asylum, and both the resident physicians and myself have had this proved to our satisfaction by a large number of cases. Peptonized milk is very much less likely to disagree than either condensed milk or fresh cow's milk. But in many, even this caused an aggravation in the intestinal symptoms, particularly in severe and protracted cases. Again and again have I seen relapses brought on when milk was added to the diet in cases where the stools had been practically normal for two or three days."[1]

The food used may consist of chicken and mutton broths, beef juice, and rice or barely water. With this list, no difficulty will be experienced in giving the child sufficient nourishment. In the medicinal treatment the first thing to do is to cleanse the alimentary tract as thoroughly as possible. In the first stages of the diseases there is no better agent for this purpose than castor oil. But if there have already been several serous discharges, copious enemata of water will be more suitable. These injections may contain either an astringent or a disinfectant, or both. For the latter, Holt recommends benzoate or salicylate of sodium, and for the former, nitrate of silver or tannic acid.

The next thing to be done is to arrest the growth of the germ. This germ has been found so far to develop only in acid media. Therefore, I think it wise to administer some antacid. Probably there is nothing better in this line than the old chalk mixture. In the preparation of the chalk mixture, the druggist should be requested to use glycerine, as many druggists still use syrup in this preparation. The presence of the sugar leads to rapid decomposition during hot weather. It has been said that the use of the antacid is irrational, because the discharges are often alkaline. Of course, the serous discharges are often alkaline, because they consist of blood serum and will be alkaline unless they have remained in the intestine long enough to ferment; but the reaction of such discharges does not prove that the contents of the stomach and small intestine are alkaline.

As to the use of germicides, much is yet doubtlessly to be learned. No doubt the chief effect of subnitrate of bismuth in this disease may be due to its effect upon the germ. Holt makes an excellent showing for the salicylate of sodium, but since he has been using this drug he has followed the no-milk diet and doubtlessly his lessened mortality has been due to the exclusion of milk quite as much as to the salicylate. He uses this drug in doses of from one to three grains every two hours.

I am now making some experiments with the object of ascertaining the effect of certain germicides on the development of this poison. The results I will give in some future paper, but I may state here what my success has been in a few experiments with mercuric chloride. The method of conducting the experiments was as follows: Four-ounce bottles were filled with milk, milk and ferment, and milk and ferment with mercuric chloride, closed with glass stoppers and kept in an air-bath at the temperature of the body for six hours. Then the milk was tested for tyrotoxicon with the following results:

No. 1. Bottle containing pure milk only. Result, no poison.

No. 2. Bottle containing pure milk only. Result, no poison.

No. 3. Bottle containing milk and ferment. Result, the poison present.

No. 4. Bottle containing milk and ferment. Result, the poison present.

No. 5. Bottle containing milk, ferment, and one-hundredth grain mercuric chloride. Result, the poison present.

No. 6. Bottle containing milk, ferment, and one-fiftieth grain mercuric chloride. Result, the poison present.

[1] New York Medical Journal, January 29, 1887.

NOTES ON SOME OBSCURE CASES OF POISONING BY LEAD CHROMATE, MANIFESTED CHIEFLY BY ENCEPHALOPATHY.

BY DAVID DENISON STEWART, M.D.,
CHIEF OF THE MEDICAL CLINIC IN THE HOSPITAL OF THE JEFFERSON MEDICAL COLLEGE.

I DESIRE to bring to the notice of the profession some cases of saturninism that recently came under my observation which are peculiarly interesting on account of the mode of entrance of the poison as well as of the somewhat unusual symptoms presented.

In a family of nine persons, all of whom had been in sound health up to January 1, 1887, and in whom no hereditary predisposition to affections of the nervous system was known to exist, six had, in a period of four months, eclampsia, which I am inclined to believe was in all of saturnine origin, or at least had a saturnine element in its causation. Four of this number succumbed to the eclampsia, two made good recoveries. The two cases that recovered and two of those that terminated fatally came under my immediate observation.

Beside these six cases, two other members of the same family presented symptoms which were of the nature of lead encephalopathy, although eclamptic attacks were absent. Of the two fatal cases under my care, in one there can be only the shadow of a doubt that the eclampsia was due to lead; in the other, the exclusion of other affections, the character of the symptoms, the presence of a blue line along the gums leave no room for question as to the nature of the case. The discovery that all had, for a continuous period from the above-named date, probably daily, ingested more or less lead, and in a highly toxic form, contributes greatly to the support of my assumption as to the probable nature of the other cases.

In presenting concise histories of these cases, I purposely refrain from enlarging upon points connected with the manifestations of the eclamptic attacks, and the treatment pursued not necessary to the establishing of a diagnosis, believing that a prolonged history, however interesting, would render the sketch too discursive, and contribute but little to

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its value in directing the attention of the profession to the possible greater frequency of saturnine encephalopathy in our midst than we are aware. It is likewise hoped that it will aid, at least in a slight way, toward bringing about some stringent action on the part of the authorities, making the use of lead chromate as an adulterant of food articles a misdemeanor punishable by the severest penalties.

CASE I.—Mary D., æt. five and one-quarter years, had never been ill until December last, when she contracted a mild attack of pertussis. There had been a slight whoop in her cough for two or three weeks before death, but the spasmodic element was said to have been so slight that the parents were in doubt whether the affection deserved the name of whooping-cough; the accessions were few in number and the cough of very moderate severity. She had been about from the first and partook of her meals with the family. For two or three days prior to the onset of the eclampsia, she had complained of anorexia and nausea and had frequently vomited. The vomited matter was said to have consisted of a greenish-yellow fluid. It was thought the fits of vomiting were not particularly provoked by cough. The symptoms were thought to indicate a digestive disorder by the parents, and medical aid was not sought. She was seized with a violent, general convulsion on January 8th, and died on the following morning, eight hours after the first seizure, having had in the neighborhood of thirty-five convulsions. On account of not having seen the case twenty-four hours prior to death, the physician who was called reported it to the coroner. No post-mortem examination was made.

CASE II.—Louisa D., æt. three and one-quarter years, had never been ill until a slight attack of pertussis appeared early in January. There had been a slight whoop in her cough since January 10th, but the cough was not thought by the parents sufficiently troublesome to require treatment. She was constantly about the house, and was permitted to eat of whatever food was upon the table. She complained of not feeling well on January 23d, and had several attacks of vomiting. She was about on the 24th, but vomited during the day, not particularly, however, after a paroxysm of cough. The vomited matter was said to consist of a greenish-yellow fluid, biliary in character, similar to that ejected by Case I. On the afternoon of January 24th, shortly subsequent to an exacerbation of cough, she complained of nausea and asked for a basin that she might vomit. During the act of vomiting convulsions appeared, which, I am informed, continued, with brief intervals of stupor, until death occurred within twelve hours after the first seizure. Her bowels were said to have been open on that day, and there was thought to have been neither constipation nor diarrhœa.

I did not attend either of the preceding cases, but believe the clinical histories as given to be entirely reliable. I have been informed, since my attention was directed to lead as the possible cause of these deaths, that both of the preceding cases complained occasionally, for a few days anterior to the attacks, of pains in the abdomen, but I could not discover if they were of a colicky nature.

CASE III.—Wm. D., æt. fifteen months, also had pertussis when convulsions appeared. The first spasm occurred on the day Case II. died, January 25th. The whoop had appeared in the cough ten days before. The attack of pertussis was of average severity, and the number of accessions moderate. His cough was loose and attended by profuse secretion, most of which was swallowed when coughed into the pharynx. There was not a great deal of vomiting. He had been allowed for several months to partake of ordinary "table food," but he was not known to have eaten at that time anything particularly indigestible and his bowels had been open twice on the preceding day. The first convulsion lasted fifteen minutes and was very severe; it was succeeded by stupor in which I first saw him. The temperature was but slightly elevated; the head not very hot; anterior fontanelle moderately tense; gums nowhere sufficiently swollen to account for the spasms; the tongue was furred. There were a few moist râles in the chest but unaccompanied by any alteration in resonance. The urine was free from albumen. Five severe convulsions occurred on the following day, each being succeeded by insensibility lasting an hour or more. On the next day there was but one, which, however, was exceedingly severe and continued for nearly two hours, during which there were constant tonic and clonic spasms, general and local. On January 28th there was a mild one, after which no more occurred until February 3d, when he had a severe one, which terminated the eclamptic attacks, and he then made a rapid recovery from both eclampsia and pertussis.

On the day preceding the last convulsion, February 2d, the gums covering the lower canines seemed to be rather tense; they were freely incised at the time of the last convulsion. There was only a moderate amount of bronchial catarrh accompanying the pertussis and no inflammatory complications occurred. The convulsions did not occur during or immediately succeeding paroxysms of cough.

CASE IV.—Lewis D., æt. seven and a half years, had an eclamptic attack for the first time on March 18th. He had had an attack of pertussis in December, 1886, from which he made a good recovery. No complications were supposed to have occurred during it, and there had been no whoop in his cough for two months. He was supposed to have coughed rarely, if at all, for several weeks preceding the above date. His health had always been most excellent, and he was of a strong though nervous constitution. It was remarked that, for a day or two preceding the outbreak of the eclampsia, his breath had been offensive and his tongue furred. The bowels had been inclined toward constipation for several weeks before this time. On the evening of March 17th, after having fallen asleep on a chair, before retiring, on awaking his face wore a startled expression accompanied by some oscillation of the eyes. No complaint was made of headache or pains elsewhere, as far as could be remembered. I gleaned from an outsider that he had had a fall, while at play in the street, a day or so before. His parents were not aware of it, as he had uttered no complaint.

At noon on March 18th, without known premonitory symptoms, while playing with a sister, he suddenly fell to the floor in a general tonic convulsion, which rapidly gave place to a severe general clonic one, lasting upward of a half hour, leaving him in a stupor from which, in a few minutes, he emerged to be again seized with tonic and clonic spasms. He continued in this state, almost constantly convulsed, with short intervals of remission in which great restlessness, stupor, or coma was present until 4 o'clock on the following afternoon, when death ensued, about twenty-eight hours after the first seizure.

Œdema of the lungs, bronchi, and trachea occurred in the preceding evening, and from this time on, at short intervals, frothy mucus, sometimes blood-streaked from the bitten tongue, appeared at the mouth and nose. The respirations changed from stertor to well-marked Cheyne-Stokes two hours before death, and so continued until dissolution. His temperature, which a few hours after the onset had been only slightly above normal, rose to 107° F. before death.

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I did not see him until some hours after the first seizure, and could then get no further information as to the origin of the attacks than has been given. The physical examination revealed very little. The heart was normal; moist râles were present in the chest, due, I thought, to a beginning œdema; and there was some alteration in the resonance at the bases posteriorly, but it was difficult to determine satisfactorily to what this was due. An examination of the urine showed neither albumen nor sugar. He had had no symptoms indicating the onset of any of the acute diseases which are, in children, frequently accompanied by sympathetic convulsions,

The result of the necropsy, briefly stated, was as follows: Externally, on the forehead of the right side, in the upper part of the middle frontal region, there was a small ecchymosis, and the external periosteum beneath was the seat of a very small punctiform extravasation. There was no bruise in the internal periosteum. The brain weighed fifty-six ounces avoirdupois; was healthy and rather anæmic. There was a very small quantity of fluid contained in the lateral ventricles. The pericardium and heart were normal. An old adhesion existed in the left pleura, at the apex of the lung. The lungs were congested, œdematous, and, posteriorly, part of the lowest and middle lobes on the right, together with a small part of the lower lobe on the left, in the same situation, were apparently the seat of a bronchopneumonitis, which had been altogether "latent" during life. This condition was only evident posteriorly in small portions of the lobes. Dr. Rively, Demonstrator of Histology in the Jefferson Medical College, very kindly made sections of these portions for microscopic examination, and assured me they were the seat of a pneumonia. In the abdomen the organs were all apparently in a healthy condition. A thorough examination was not made here, it being the wish of the parents that as little as possible should be disturbed.

CASE V.—Mrs. V., æt. thirty-seven, mother of seven children. At the date her eclamptic attack occurred she was at the end of the eighth month of gestation. She had always been healthy, but had noticed during the past three or four pregnancies some œdema of both legs; not sufficient, however, to affect her general health, or interfere with locomotion. She had never had a convulsion, puerperal or otherwise, until April 24th of this year. For the space of a week or two previous to this date she had suffered with supraorbital neuralgia and slight pains and anæsthesia in the inferior extremities. Her bowels were inclined toward constipation, but she thought she had a free passage four times a week. Her urine was normal as to the quantity passed, but there was a small amount of albumen present, estimated by the method of Hoffman and Ultzmann to be one-sixth per cent. The quantity of her urine underwent no diminution prior or subsequent to the attack, and by the specific gravity alone it was thought the nitrogenous elements were being excreted in fair amounts. No examination for casts was made.

On the morning of April 24th, while occupied with her household duties, feeling quite well and entirely free from any cloudiness of mind, headache, disorders of vision, or vertiginous sensations, she was suddenly seized with a severe epileptiform convulsion, lasting ten minutes. After an hour's interval, during the greater part of which she lay in a semi-unconscious state, and had an attack of vomiting, the matter vomited containing a great deal of bile, a second convulsion occurred, which continued, with very slight intermissions, a half hour, followed by an attack of acute mania lasting three hours. The tongue was severely bitten during the convulsions. Very prompt treatment brought her about, and the convulsions were not repeated. As they were believed to be of puerperal origin, and closely related to the albuminuria, she was put upon an absolutely milk diet, appropriate remedies were prescribed for her condition, and complete rest in the recumbent posture was enjoined.

CASE VI.—Amelia D., æt. twelve years, was well-made physically; her temperament was a combination of the lymphatic and nervous, and she was considered a bright and promising child. Her health had always been remarkably good prior to the beginning of the present year. Since then it was noticed she had fallen off in flesh and color, but this was attributed by her parents to her grief on account of the loss of her brother and sisters, as she made no complaints of feeling ill. For several days preceding the eclamptic attacks, she seemed listless and unable to exert herself; spoke of having headache and "feeling bad all over." There was complete anorexia and a very fetid breath. The day before the onset of the convulsions she suffered with nausea, accompanied by vomiting of a greenish fluid resembling bile, and a racking headache, located in the frontal and occipital regions.

I was called to see her for the first time on May 12th. Her temperature was 99° F., pulse 130; the tongue was heavily furred, particularly the posterior portion, while along the left lateral edge, on a line between the dorsum and under surface, the fusiform papillæ were prominent and of a deep black color. There was no cough, and the lungs and heart were normal. No abdominal tenderness was present, and no pain on pressure about the head, neck, or spine, and there was no retraction of the neck or spots on the skin. An examination of the urine revealed nothing. In the evening the headache had greatly increased in severity, great restlessness had developed, and two severe general convulsions occurred. These were apparently checked by the treatment begun, and she passed a moderately comfortable night. The headache, however, became again more severe toward morning and continued so through the day; the tongue remained coated and the breath offensive, notwithstanding she had been well purged on the preceding day. At five o'clock in the afternoon the convulsions recurred and continued from that time on, with slight intermissions, during which there was restlessness, stupor, or coma, until four o'clock on the following afternoon, when death occurred—about forty-two hours after the first seizure. Œdema of the lungs, bronchi, and trachea developed some hours preceding the fatal issue, and well-marked Cheyne-Stokes breathing appeared. Her temperature during the convulsions was never found to rise to a greater height than 102½° F. The restlessness during a few hours preceding death was intense. The convulsions continued up to death, but were confined, toward the end, to the upper extremities and facial muscles.

A necropsy was made shortly after death, for the purpose of removing the viscera that a chemical examination might be made of them for the presence of lead. The body was well nourished and well developed for a girl of twelve years. There was a distinct blue line below the lower central and lateral incisors at their junction with the gum. The stomach and contents, part of the liver, the large and small bowel, the spleen, and a kidney were removed and placed in Dr. Leffmann's hands for chemical examination. The abdominal organs appeared to be in a healthy condition. The thorax, on account of the wishes of the parents, was undisturbed. Dr. Longstreth very kindly made an examination of the brain, and informed me that the fibrous tissue about the base, particularly in the neighborhood of the straight sinus, was thickened; the lateral and fifth ventricles were somewhat dilated and contained more than the average quantity of fluid. Microscopically, many of the arterioles showed irregular dilatations. In the cerebellum the corpus dentatum was

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exceedingly ill-defined, and in small parts seemed thickened. The brain and meninges were congested, and there was an ante-mortem clot in the longitudinal sinus. The brain weighed fifty-three and three-quarters ounces, avoirdupois.

The sudden illness of this child in whom there had existed no previous disease, in so short a time after the eclamptic seizures in the others, and with some points of similarity in the symptoms preceding the onset of the eclamptic attack, caused me to look carefully for something apart from a mere neurotic element as the cause, underlying the supposed digestive disorder, which could give rise to the eclampsia. I felt a doubt if any of the convulsive seizures in these cases had been directly excited by the affections under which they were known to have been laboring. The symptoms presented by Case VII., who was now brought to me, assisted materially in throwing light upon all the preceding cases.

CASE VII.—Kate D., æt. thirteen and three-quarter years, was noticed to have failed in health and strength for several months past; her skin had, from a rosy tint, become of rather an earthy hue; her appetite had failed, and she suffered with frequent headache and slight pains in the legs, back, and abdomen, with occasional attacks of nausea and vomiting.

No particular notice was taken of her condition, her parents supposing that grief because of the loss of her playmates, together with the fact that she was approaching puberty, would account for her condition. About the time Case VI. was taken ill she grew rapidly worse and was brought to me for examination. She was then very anæmic, the conjunctivæ and gums were very pale. Her skin had not the hue of chlorosis, it was rather of an earthy-yellow color. Her heart was over-acting, with a markedly accentuated second sound at the apex. The temperature was 99° F. She suffered with constant severe headache, which she located in the temples and occiput; there was pain in the posterior part of the neck as well. There were no painful points. The back of the neck was tender on pressure, but no cutaneous hyperæsthesia or retraction of the neck existed. She had slight photophobia, and the pupils were irregular. Slight pains in the knees and ankles were also present, without swelling or tenderness on pressure. There were occasional colicky pains about the umbilicus, but of no severity. Her bowels, which previous to her falling off in health had been quite regular, now became constipated. She had irregularly, though about once daily, attacks of nausea, and vomited a good deal of bile. The night previous to the day I saw her she had been quite delirious and continued so, with lucid intervals, into the day. During this attack of mental wandering she complained of numbness in the upper and lower extremities, passed a large quantity of limpid urine, and vomited freely, the vomited matter being bilious in character. Lead poisoning being suspected, the gums were examined carefully for a blue line. A moderately well-marked one was noticed at the junction of the left lower canine and the adjoining first bicuspid and the gum. Her urine was free from albumen.

CASE VIII.—Edward D., æt. nine years, who up to this time had exhibited no symptoms of illness, now began to ail in much the same manner as Case VII. He was seized with severe headache and some pains in the knees and ankles. He had slight colicky pains in the belly associated with vomiting; the vomited matter consisted of a greenish-yellow fluid resembling that ejected by the others. His bowels were inclined toward constipation. He was anæmic and there was fine tremor in both hands and twitching in the muscles about the mouth on protruding the tongue and in speaking. The tongue was thrust out tremulously and was quite heavily furred. There was a suspicion of a blue line along the gum in the neighborhood of one of the lower incisor teeth. His urine contained no albumen.

Seven of these cases exhibited several similar and notable symptoms in common, though in a varying degree. All the eclamptic cases, save Case III., had preceding symptoms referable to the stomach or bowels, and vomiting of a greenish fluid resembling bile[1] was present in seven out of the eight cases. In Case VI. the gastric symptoms were very marked, and it was not until Case VII. was taken ill that it was mentioned to me as having occurred in some of these cases, by the parents, who fancied the bilious vomiting and slight colicky pains present in Cases I. and II. to have been a simple gastric disorder unworthy of remark.

Convulsions occur in pertussis with a moderate degree of frequency, and from such a variety of causes that it would be difficult to assert that none of them were in operation in the first three cases of my series. They are, however, very rare in uncomplicated cases, unless the child is of very tender age, or the attack severe, with the spasmodic element marked, and the accessions frequent. In the latter case deficient aëration of the blood or, in highly sensitive children, an exaggeration of the nervous excitement which is an ordinary symptom of the disease, is the probable cause.[2] Convulsions in pertussis may, too, be due only indirectly to that disease.[3]

In early childhood a tendency to eclamptic attacks, which is more or less common, is aggravated by the state of nervous tension in which the system is maintained by the pertussis, so that often very slight gastric or intestinal irritation, or an attack of dentition, will provoke a seizure. But convulsions from such a cause are rarely followed by serious consequences, and are readily checked. A frequent cause of eclampsia in pertussis is the presence of an inflammatory affection of the lung, such as bronchitis of the smaller tubes, or broncho-pneumonia. In twelve cases of eclampsia in pertussis, observed by Meigs and Pepper,[4] all of which occurred under the age of three years, six had severe bronchitis preceding the eclampsia, and one a pneumonia. Five of the twelve died; of these five, four were bronchitic cases.

I have previously remarked in the recital of the histories as to the mild character of the whooping-cough in the first three cases, none of them having had a lung complication, and Cases I. and II. were beyond the age at which any of Meigs' and Pepper's cases occurred. As all were of a nervous organization and presented symptoms of gastric disorder, the eclampsia might be attributed to the latter as a complication if the attacks had not been so severe, frequent, long-continued, and, in two, ending in

[1] Tanquerel laid stress on the great frequency of nausea and vomiting as accompaniments of colic seated about the epigastrium, due to lead. He also stated that vomiting most frequently exists at the commencement of lead colic, as soon as the pains are felt, and that the matter vomited has a greenish hue.

[2] Eustace Smith: A Practical Treatise on Diseases in Children.

[3] Ibid.

[4] Diseases of Children.

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death. But as the digestive trouble was probably produced by the cakes containing the chromate of lead, of which all the cases, even the baby, ate freely, and as this salt acts as an irritant poison,[1] even in small quantities setting up gastric trouble, I may be permitted to say that lead probably was the source of the trouble, even if the eclampsia were not what is technically called saturnine—that is, due to the direct action of the metal on the nervous system. But, in Cases II. and III., colicky pains, nausea, and vomiting of a greenish-hued fluid, would rather indicate the systemic action of this substance.

The latent broncho-pneumonitis found *post-mortem* in Case IV., in a boy aged seven and a half, with a brain weighing fifty-six ounces, seemed at that time sufficient to account for the eclamptic attacks, though I thought scarcely sufficient to account for their continuance and mode of termination. Looking at the case now, in the light of later developments, it would seem reasonable to suppose that since the slight broncho-pneumonitis present was probably secondary to a lobular collapse, occurring at the period of his attack of pertussis in December last, it is unlikely that, having escaped eclampsia then, at a period most favorable to its development in one predisposed, he should have succumbed to it now. It is difficult to decide what influence the fall of a day or two before had upon the development of the eclampsia. As he made no complaint of his head and presented no symptoms of cerebral irritation, it is fair to conclude the trouble did not arise from it. The knowledge of the ingestion of lead, the colicky pains in the abdomen, with the fetid breath and constipation, point strongly to that mineral as the agent at work.

It is more difficult to form an idea as to the influence of lead in the production of the eclampsia in Case V., occurring as it did toward the end of pregnancy, with albuminous urine and œdema of the legs. There was, however, no diminution from the normal quantity of urine excreted preceding the onset of the eclampsia, and though no examinations were made to determine the quantity of urea excreted, it was thought from the specific gravity of that passed, that the kidneys were doing their work fairly well. The amount of albumen was at no time large. Lusk[2] calls attention to the fact that it is the renal insufficiency causing the retention in the blood of the excrementitious matters, and not the mere presence of albumen which gives rise to uræmia and convulsions. Although this woman had œdema of the legs and, probably, albuminuria in former pregnancies, no convulsions had occurred. She presented no symptoms of uræmia at the time of the attack. The headache and slight loss of sensation in the legs complained of, unaccompanied by such symptoms as drowsiness, vertigo, disorders of vision, were scarcely of this nature. The fact that she had been consuming more or less lead in no small quantities for several months, and that the convulsions occurred at a time when others were likewise affected, after having been exposed to the same agent, favors the assumption that the eclampsia was of saturnine rather than renal origin.

When searching for evidences of lead poisoning in the others, her gums were examined, and it was noticed that the upper part of the gum near the teeth in the neighborhood of the lower central and lateral incisors, was very distinctly blue. The removal of the cause in the cases surviving, and proper remedies directed against the lead in the system, soon produced a marked improvement in all.

Case VII.'s headache, colicky pains in the abdomen, anorexia, nausea, vomiting, and pains in the legs, all disappeared, and she is rapidly regaining her strength and color. She complains yet of a persistent pain in the right hip-joint, which does not cause any serious annoyance.

Case VIII. made a still more rapid improvement, not having been so much affected as his sister.

In searching for the origin of the trouble, it was learned that the family had occupied the dwelling they were then in for the past five years, and that no case of illness of any sort had occurred during that time, until about the beginning of the present year. I made a careful examination of the house, its contents, and the plumbing, but was unable to discover anything to cause suspicion, save, perhaps, an iron kettle, glazed on its interior, which had been in use for several months. Knowing that litharge was formerly used in making glazed earthenware and iron vessels, and that accidental cases of poisoning have occurred from the use of such utensils in cooking acid fruits and vegetables,[1] I had some of the glaze removed for a chemical examination. Scarcely supposing the lead could have come from this, as they had eaten very few acid fruits and vegetables during the winter and spring, I thought it probably came from a source external to the house.

Learning from the family that they had made a change in their baker a short time preceding the date their illness began, and learning, accidentally, that the baker, who had been in the neighborhood scarcely a year, had himself lost a number of his family in convulsions a year or so previous, I visited him for the purpose of making inquiries. I found his wife suffering with pains in her ankles and stomach, which had been worrying her intermittently for some months, and which she attributed to overwork. A brief examination disclosed the fact that she was intensely poisoned by lead. Her bowels were constipated, she had dry colic, a metallic taste in her mouth, loss of appetite, occasional attacks of nausea and vomiting, headache, and arthritic pains in the limbs, her tongue was coated, the breath fetid, and the gums in the upper and lower jaws were of a deep blue color.

I at once informed the baker of her trouble. He assured me he was unable to enlighten me as to its source, as he had no lead about his establishment. He denied using any artificial coloring agent in his trade. A visit to his cellar, however, into which I had him take me, disproved his assertion, for after making an inspection of his plumbing and the bake-

[1] Taylor on Poisons.
[2] Science and Art of Midwifery.

[1] Woodman and Tidy: Forensic Medicine and Toxicology.

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oven, and procuring some samples of his flour and chemicals used for raising dough, he permitted me, after some demurring, to see a pitcher, which contained a quantity of yellowish substance, partly in solution, which I recognized as chrome yellow.

Further inquiry elicited from him the information that he used it solely to give color to his tea- and cinnamon-buns, employing about a tablespoonful of the powder and water to a forty pound mass of dough. He assured me he was unaware of its poisonous nature, and did not introduce it into his more expensive cakes, using eggs for them. I took a sample of this substance to Dr. Leffmann for examination; he at once pronounced it chromate of lead.

I further learned from the baker that he had lost, between May, 1884, and January, 1886, a wife and six children in convulsions, and that lead poisoning was suspected to be the cause of death in most of the cases. During this time a journeyman baker in his employ also was seized with lead colic, and was forced to leave him.

On making inquiry of one of the physicians who had attended this family at the time some of the deaths took place, I learned that these cases had caused a great deal of talk when they occurred, as the circumstances surrounding the deaths were so peculiar. They seemed to be all cases of saturnine eclampsia, but the source whence the lead was derived had not been discovered. It now seems most likely that it was the chrome yellow used by the baker to color his cakes.

I ascertained from Mr. D. that his family, since dealing with this baker, had been in the habit of purchasing daily from twelve to eighteen of the tea and cinnamon-buns from the baker and, usually, double this quantity on Sunday. He stated that they were greatly liked on account of their yellow color and good taste by all in the house but himself, who had no liking for sweet cakes, and that it was a rare thing for any of them, scarcely excepting the baby, to partake of anything at breakfast save these buns, and coffee or milk.

The use of chrome yellow as a coloring agent by bakers is not recent. In the *Medical Times and Gazette* of December 24, 1859, p. 635, are recounted six cases of acute poisoning caused by eating Bath buns, colored by this agent. Some of the buns which had not been consumed were subjected to analysis, and it was found that each contained seven grains of chromate of lead. Marshall, of the University of Pennsylvania, has recently[1] published the result of some work he has done in this direction. He found lead in the buns and pound-cake of four out of twenty-six shops. Dr. Leffmann made for me analyses of some bright-yellow sponge-cake and tea-buns obtained from the baker I found using the chrome yellow. The result is subjoined. He suggests that while the naphthol yellow, which he is inclined to believe is the agent used to impart color to the sponge, may in itself be harmless, it is possible that it may, from its chemical nature, promote somewhat the absorption of the lead chromate when these agents come together in the stomach.

The only cases hitherto on record of death by chrome yellow are those[1] reported by Dr. von Linstow, of Ratzeburg, who described the cases of two children under four years of age. They ate some substances made to look like bees, consisting of gum tragacanth, colored with this agent. They were seized, in two or three hours, with violent vomiting, great thirst, restlessness, and prostration. The matter at first vomited had a yellowish color. There was no diarrhœa, or complaint of pain. On the following day the younger had slight purging, with convulsions, and died on the second day. The other was listless, almost unconscious, with irregular pulse, great thirst, and dysphagia. He died on the fifth day.

It is stated by Wormley[2] that the amount of chrome yellow taken by each of these children did not exceed the one-fifth of a grain. That seems barely possible, as it could scarcely, in that quantity, cause death on account of its insolubility.

Encephalopathy is the rarest of all diseases caused by lead. Tanquerel met with but seventy cases. It is usually found only in those profoundly saturated with the poison and rarely occurs as a primary affection, commonly being preceded by colic, arthalgia, or paralysis. Tanquerel has found the most important of the prodromes to be violent headache, either general or partial, and often limited to the forehead and accompanied by vertigo. He found, of all trades producing it, that it was least rare among manufacturers of white lead, and after them least rare in painters of buildings. I can find records of only a few cases in the past three decades, after a prolonged search in the library of the College of Physicians, and records of cases of the eclampsic form of encephalopathy seem especially rare, though Tanquerel pronounced them the most frequent cerebral accidents caused by lead.

Dr. Leffmann reports the result of his analyses as follows: "The examination of the bun shows lead in a small amount, approximately two grains of lead chromate to each bun; but as the material was irregularly distributed, and the portion most distinctly colored was selected for analysis, this estimate is doubtless too high.

"The sponge cake is colored with an organic color soluble in alcohol. This is possibly naphthol yellow, but it has not been definitely identified.

"The samples of urine from Mrs. D. and Katie D. respectively, and various parts of the viscera, give slight precipitates, indicating the presence of some metal of the lead group, but the quantity is too minute to permit of identification, and it cannot, therefore, be affirmed that lead was found in any of these.

"The glaze, very finely powdered, and treated with strong boiling hydrochloric acid, yields a solution which gives with hydrogen sulphide a precipitate which indicates the presence of tin, but this has not yet been fully examined."

[1] MEDICAL NEWS, January 1, 1887.

[1] Taylor on Poisons.

[2] Micro-Chemistry of Poisons, 2d ed., p. 365.

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NEPHROLITHOTOMY.

BY D. HAYES AGNEW, M.D.,
PROF. OF SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

W. S., æt. thirty-seven years, married, a grocer by occupation, and living in Western Pennsylvania, consulted me in the autumn of 1885 on account of a dull pain, deeply seated in the left lumbar region, and radiating in the direction of the groin, and across the front of the abdomen. The pain was always worse at night, and was accompanied by considerable vesical irritation, causing frequent urination, with occasional rigors. On examining the left lumbar region, there could be felt, as well as seen by the eye, a well-defined swelling. The urine, about normal in quantity, contained considerable mucopus, phosphates, and albumen, the latter not, perhaps, greater in quantity than might be accounted for by the pus corpuscles present.

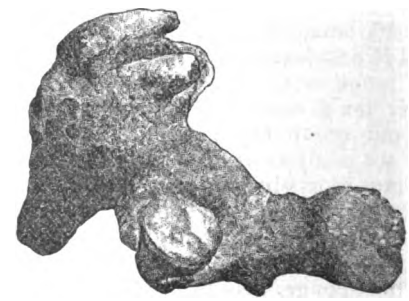
The diagnosis lay between renal calculus, perinephritic abscess, or cystic disease. Inasmuch as there had been no renal elements discovered in the urine, no colic at any time present, and no concretions passed, together with the fact that a tumor existed in the left lumbar region, I was induced to conclude that the disease was either cystic or perinephritic. The patient did not remain in the city, and consequently passed out of my observation without having an opportunity of further investigating his case.

In February, 1887, I was again called to see Mr. S. with Professor Pepper, under whose care he was at that time. His lumbar pain had never been relieved; on the contrary, had increased in severity; the urine still contained pus corpuscles, blood corpuscles, and a small amount of albumen. The preceding November he thought he had, after an attack of colic, passed a small stone, and the swelling, first observed in the loin, was no longer detectable. His suffering had now become so constant and severe that he was no longer able to follow his business. It was the opinion of Dr. Pepper, as well as myself, that the only cause sufficient to account for his symptoms was the presence of nephritic calculus, and in view of this conclusion, an exploratory operation was proposed, and readily assented to by the patient. With this object Mr. S. was kindly turned over to my professional care by Dr. Pepper.

Operation.—On the 7th of March, after a brief preliminary treatment, the patient was placed on the operating-table, after etherization, and laid on the right side, over a pillow rolled into a firm cylinder. An incision about four inches in length was made on the left side, beginning at the edge of the erector spinæ muscles, and carried obliquely forward and downward half an inch below and parallel with the last rib. The different strata of tissues were divided down to the lumbar aponeuroses. The latter being opened, the renal fat immediately projected into the wound. On breaking up the mass of adipose matter a quantity of purulent matter escaped, which had evidently been confined for some time around the kidney. After the latter had been sufficiently denuded of its fatty covering, a careful exploration of the organ was made by the finger, in search of the suspected stone, and at first without success, but on repeating the examination a hard point was discovered, which, on scratching away the renal tissue with the finger-nail, proved to be a calculus. As the process of denudation, partly by the nail, and partly by the point of a steel director, progressed, it was found that the stone was one of much greater magnitude than at first anticipated, filling up the entire pelvis of the kidney, and sending its prolongations into the infundibula. After following the different branches of the concretion separately, the calculus was lifted out of its bed by a scoop, and carried sufficiently near the surface of the wound to admit of being seized by a pair of fenestrated forceps and removed. A careful digital examination was now made, to ascertain if any fragments had been left behind. A single piece was discovered and removed.

During the enucleation the bleeding was quite free, but soon subsided on the application, for a short time, of a pledget of antiseptic lint. A drainage-tube was next introduced through the wound into the pelvis of the kidney, and the cavity well washed out with a solution of bichloride of mercury (1 to 2000). The wound was closed by two rows of sutures, the deep ones (catgut) bringing together the aponeurosis and muscles, and the superficial ones (silver) approximating the skin and subcutaneous tissue. The wound was next dusted with iodoform, covered with a strip of protective, over which were placed deep and superficial compresses of carbolated gauze with mackintosh, reinforced with a layer of salicylized cotton, and the whole secured in place with an antiseptic roller. The whole operation was done antiseptically.

The patient was placed in bed somewhat, but not seriously, shocked by the operation, but in a few hours reacted satisfactorily. From this time forward he had no symptoms giving rise to any anxiety whatever. His temperature ranged from 98¾° to 99°, and only on two occasions reaching over 100°. Urine passed freely through the drainage tube, requiring the dressing to be renewed twice in the twenty-four hours. The lowest quantity passed by the natural routes was twenty-five ounces, the largest fifty-four ounces in twenty-four hours. On two occasions a small fragment of stone escaped, once through the drainage tube and once through the opening after the tube was taken away. The drainage tube was not



Calculus, natural size.

disturbed for two weeks, after which time it was removed by instalments, the last portion being taken

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away at the end of the third week, at which time the patient was sitting up, and on April 3d was discharged from the hospital. A narrow tract in the loin was still open, but scarcely any urine escaping.

The stone (see figure) weighed 275 grains, and was composed chiefly of phosphate of lime and uric acid.

MEDICAL PROGRESS.

A CASE OF SUCCESSFUL EXTIRPATION OF A LARYNGEAL CANCROID BY INTRALARYNGEAL PROCEDURE.—As this case is referred to in our editorial comments upon the case of the Crown Prince of Prussia, we transcribe the reference in the May number of the *Internationales Centralblatt für Laryngologie, Rhinologie, und verwandte Wissenschaften*, to FRÄNKEL'S article in Langenbeck's *Archiv*, Bd. xxxiv. H. 2, 1886.

On September 17, 1881, Dr. Fränkel removed, with the snare, a tumor larger than a French bean from the right vocal band of J. W., of Rostock. The tumor was without doubt a cancroid, as demonstrated by the author in several microscopic sections. Recurrence ensued despite the apparently thorough removal. In September, 1882, a similar growth the size of a pea, and in May, 1883, another the size of a French bean, were removed from the same spot and in the same manner. In 1884, a lymphatic tumor the size of a hen's egg had developed on the right side of the neck. In February, 1884, the larynx was again cleared, and extirpated portions were examined by Virchow and found to be cancroid. On April 1st, Professor Magdeburg, of Rostock, successfully extirpated the diseased glands from the neck despite extensive adhesions with the jugular vein, and found that the extirpated glands were undoubtedly carcinomatous. In June, 1884, intralaryngeal interference became requisite for the fifth time, in consequence of recurrence, and the tumor was torn out with the snare in two sittings.

This time the operator omitted the subsequent electrocauterization which had followed the previous extirpations. No recurrence ensued, and since the summer of 1884 the seventy-five year old patient has been completely well. His voice has been thoroughly preserved, and he can be regarded as cured. The author is of opinion that this case justifies the institution of intralaryngeal measures, even in cases of laryngeal cancroid, although such procedure has its limits. Thus he recently transferred a patient to Dr. von Bergmann for unilateral extirpation of the larynx, because the partially subglottic seat of the cancroid at the anterior commissure of the vocal bands indicated danger of extension to the other side of the larynx. This patient has thus far remained cured, and speaks with an audible voice.

Fränkel recommends the following rules in the management of laryngeal carcinoma: In all instances justified by the location of the tumor, a tolerably large piece should be removed with snare or forceps under the topical influence of cocaine. Should microscopic examination show that it is carcinoma, and should there be no immediate danger that the tumor is extending to the other side of the larynx, then the indication exists to attempt to tear the growth out with snare or with forceps under local anæsthesia. The patient is to be kept under frequent laryngoscopic observation, and every recurrent formation is to be removed as soon as practicable by the same methods. If the desired end cannot be accomplished by intralaryngeal procedures, then partial resection of the larynx becomes justifiable. Even should both sides of the larynx be implicated, it becomes a question for consideration whether extirpation is not possible by intralaryngeal procedure before the question of total extirpation is to be entertained.

SÄNGER'S DESCRIPTION OF THE OBJECT AND RESULT OF HIS STUDIES IN CÆSAREAN SECTION.—In the *American Journal of Obstetrics* for June, 1887, SÄNGER, of Leipzig, describes his researches and their results as follows:

"To study the behavior of the uterine wound in the Cæsarean operation: this formed the basis for the correct principles governing its surgical treatment by a suture adapted to the physiological peculiarities of the uterus. Briefly defined, it (the suture) consists in the exact closure of the entire uterine wound by a two-rowed suture, the lower tier of which is to comprise the whole uterine wall without passing free through the cavity of the organ; while the superficial tier, placed between the deeper stitches, merely unites the surfaces of the serous edges; both tiers of sutures to be so close and so numerous as to insure an absolutely perfect reunion of the uterine wound, and its covering with peritoneum. The suture material to consist of a substance the knots of which do not loosen, and which will not dissolve (silk, silver, or chrome catgut). Since the uterus does not present a movable subserous layer of tissue, the undermining of the peritoneum and resection of the muscularis are intended for cases in which the parallel union of the wound and the lymperitoneal plane suture could be effected only with difficulty. The uterus after the suture must be like an uninjured organ; the uterine wound must heal by first intention without adhering to the abdominal wall."

A FORMULA FOR THE ADMINISTRATION OF CREASOTE AND IODOFORM FOR PHTHISIS.—HUCHARD gives the following prescription in *Les Nouveaux Remèdes*, of May 24, 1887.

℞.—Creasote,
Iodoform,
Benzoin pulv. . . . āā gr. ¼.
Balsam tolu . . . . ♏ ¼.
for 1 sugar-coated pill.

Sig.—From 2 to 4 pills may be taken daily.

A NEW OPERATION FOR NASAL DEFORMITIES.—DR. ROE, of Rochester, thus describes an operation which he has employed successfully for nasal deformities.

The operation is performed as follows: We first deaden the sensibility of the interior of the end of the nose by cocaine (general anæsthesia being unnecessary) and then brightly illuminate this part.

If the tissue is to be removed from that portion where the mucous membrane is not too firmly adherent, the membrane should be dissected back, to be replaced after the operation.

The end of the nose is turned upward and backward, and held with a retractor by an assistant; then sufficient of the superfluous tissue is removed or dissected out to

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allow the nose to conform to the shape that we desire. Great care must, however, be exercised not to remove too much tissue, and also not to cut through into the skin, lest we may have afterward a scar or a dent in the external surface of the nose.

In some cases no after-treatment is required, but in others it is advisable to mould a saddle or splint, as it were, to the top of the nose, so as to make it, while healing, assume the shape we wish to obtain.

In some instances the large and unsightly end of the nose is not due to an excessive tissue but to a malformation of the cartilages of the alæ, bulging outward with a corresponding concavity on the inside.

These noses can be very readily moulded into a handsome shape by cutting, with a small tenotomy knife, through these cartilages, in different places, sufficiently to destroy their elasticity. Then by inserting a silver or hard-rubber tube, of the proper size and shape, into the nostril, and conforming the saddle to the outside of the nose, we have it encased in an outside and inside splint that compels it to conform to the exact shape we desire.

While performing this operation and moulding the nose into shape, we must not neglect to preserve the nasal passages free and unobstructed.—*Medical Record*, June 4, 1887.

THE DISINFECTION OF SHIPS.—KOCH and GAFFKY have made experiments upon vessels in the German navy, from which they draw the following conclusions:

1. The keelroom of a vessel can be thoroughly disinfected, and also its contents, by corrosive sublimate.

2. Sufficient mercurial sublimate solution should be added to the bilge water to give a reaction when the copper test is made.

3. Bilge water and solution must be thoroughly mixed, which can best be done when the vessel is in harbor; a pump is requisite to accomplish this.

4. Such disinfection is complete in eighteen hours.

5. After the keelroom has been washed out with this mixture four times there is no danger of mercurial poisoning for the occupants of the vessel.

6. The material composing the vessel will not be impaired.

7. The pump used becomes so impregnated with mercury that it should not be used for other purposes; six months after such experiments neither the ship nor the pump used was found to be injured.—*Deutsche medicinische Wochenschrift*, May 5, 1887.

ANTISEPTIC FLUID USED IN THE PREPARATION OF GAUZE FOR THE AUSTRIAN ARMY.—The following formula is official in the preparation of dressings for the army:

℞.—Hydrarg. bichlorat. . . .	1 part.
Spirit. vini	100 "
Aquæ destillat.	125 "
Glycerini	50 "
Fuchsin	$\frac{1}{100}$ "

The coloring matter is to render the material easy of recognition.—*Wiener medizinische Presse*, No. 7.

THE HEREDITY OF TUBERCULOSIS.—RÜHLE, of Bonn, at the recent German Congress for Internal Medicine, read a paper of which the following is an abstract:

Koch's discovery of the bacillus has aided our diagnostic knowledge much more than our knowledge of the etiology of tubercle.

He raises the question, How by heredity is the tubercular nidus formed in the body?

The theory has been advanced that the tubercle bacillus in semen may affect the ovule, and that the germ, having lain dormant for some time, finally develops; or that the germ existing in the mother's blood may pass into the blood of the fœtus.

The facts supporting this theory are very few.

The influence of contagion by the presence of dried sputum in the atmosphere is also overestimated, as is shown by the comparative immunity enjoyed by nurses in the wards of the phthisical. The communication of tubercular matter by direct contagion in the use of drinking cups, eating utensils, in kisses and handkerchiefs is, the writer thinks, much more potent in producing tuberculosis than any other mode of infection.

He would suggest, in view of these reasons, the term *family tuberculosis*, in its widest sense, as more accurate than hereditary tuberculosis.—*Deutsche medicinische Wochenschrift*, April 28, 1887.

ANÆSTHETIC EFFECTS OF POMADES.—TOPOROFF reports good results from the following methods: One drachm is used by inunction for 10 minutes over a surface 1½ inches in diameter; at the expiration of this time the sensibility is tested by an electric current of known strength. A pomade of belladonna, 1 to 8, diminishes sensibility in a proportion represented by 0.6 after 10 minutes, and 1.1 after 30 minutes.

When lanoline was substituted for lard the effect was 0.55 to 0.99.

Chloroform pomade, 1 to 8, gave analogous effects; 0.66 and 0.62 with lanoline.

Pomades prepared with powdered drugs, as morphine hydrochlorate and potassium bromide, used for 30 minutes, increase sensibility for a certain time, which is less with lanoline than with lard. This, however, was observed in friction with simple fats.

The conclusion reached in these observations is that pomades made with lard are more active than those made with lanoline in lessening sensibility.—*Les Nouveaux Remèdes*, April 24, 1887.

SYRUP OF SUPERPHOSPHATE OF IRON AND OXYGEN.—DR. RICHARDSON, in *Asclepiad*, No. 14, gives the following formula:

Syrup of superphosphate of iron, solution of peroxide of hydrogen (ten-volume strength), pure glycerine—of each a fluidounce. Mix. To make a mixture of three ounces. Dose for an adult, from one to two fluidrachms two or three times a day in three ounces of water.

It can be made to combine with tincture of nux vomica, with strychnine, and morphine, codeine, quinine, salicine, or any other agent which does not by its presence disturb and liberate the oxygen from the peroxide.

The syrup, as it is, is a most useful remedy in cases of a neurasthenic type, and especially when anæmia is also present. In an instance of pure anæmia treated with the syrup in combination with an occasional saline purgative, I have seen more rapid results toward recovery than from any ferruginous remedy I have hitherto employed under similar circumstances.

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SATURDAY, JUNE 18, 1887.

THE CASE OF THE CROWN PRINCE.

WE are in receipt of the following special cablegram from London, giving a concise clinical report of the case of the Crown Prince of Germany. It comes from a source which justifies absolute confidence in the accuracy of its statements.

"The Crown Prince began to suffer from catarrh and hoarseness last January, and was treated at that time by his physician-in-ordinary, Dr. Wegner, Director-general of Hospitals. A morbid growth on the left vocal cord was discovered by Professor Gerhardt in the beginning of March, and he applied the electro-cautery with but slight improvement resulting.

"On the occasion of the Emperor's birthday at the end of March, the Crown Prince was obliged to use his voice much. In the middle of April he was ordered to Ems, where he took the waters for a month and then returned to Berlin no better. The growth was at this time found to have increased in size; Professor von Bergmann was called in consultation, and subsequently Professor Tobold, of Berlin, and Dr. von Lauer, the Emperor's Physician-in-Ordinary and Chief of the Army Medical Department. They all agreed that the growth was cancer, but before doing an external operation they advised that Dr. Morell Mackenzie, of London, be summoned. Accordingly the Crown Prince telegraphed Queen Victoria requesting that Dr. Mackenzie be immediately dispatched to Berlin, and he arrived there on the afternoon of May 19th. He found that all the necessary arrangements had been made to do an external operation at 7.30 o'clock of the next morning.

"Dr. Mackenzie, upon examination, found a small sessile growth of the size of a split bean, and he recommended that a portion of the tumor be removed by intralaryngeal operation for microscopic examination. Professor Gerhardt and Professor Tobold thought that this was impossible, but agreed that Dr. Mackenzie should attempt the operation the next morning. With the aid of forceps, Dr. Mackenzie succeeded in removing a portion of the growth, which, after microscopic examination, Professor Virchow reported consisted of inflammatory products.

"Dr. Mackenzie then left Berlin, but returned on June 7th, and performed a second intralaryngeal operation. Professor Virchow, after making an immense number of sections of the tissue removed, reported that the growth was a pachydermia verrucosa; that there were enlarged papillæ and epithelial cells, but no morbid elements in the areolar tissue.

"The Crown Prince arrived in England on Monday, and will stay at Norwood, under the entire charge of Dr. Mackenzie, until the middle of July, when he will go to Norreys Castle, the seat of the Duke of Bedford in the Isle of Wight."

The case of the Crown Prince of Germany cannot fail to interest citizens of the United States, as they recall some of the features of the history of the last illness of General Grant.

As we learn from our special cablegram, the Prince's disease manifested itself in catarrh and hoarseness in January; and two months later a warty growth was detected on the left vocal band. Treatment with electric cauterization was then instituted, and was attended with slight improvement; but excessive use of the voice in the festivities attending the Emperor's ninetieth birthday, in the latter part of March, made matters worse. A month's sojourn at Ems failed to be beneficial, and the Crown Prince returned in the middle of April with the growth larger than before. This clinical history of inflammatory hoarseness, probably augmenting dyspnœa, and the presence of a morbid growth which resisted the radical attack of the electric cautery, and increased rapidly in volume, despite rest of the part and other appropriate treatment for inflammatory conditions, naturally led the attendants, some of whom are men specially skilled in the diagnosis and treatment of intralaryngeal growths, to the opinion that the tumor was malignant, and to the conclusion that radical measures should be instituted for its extirpation. But it was felt that such an operation ought

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not to be undertaken unless absolutely unavoidable, on account of the accompanying risk to life, and the probable great impairment of voice, even if successful.

Dr. Mackenzie was then summoned from London to the case, and reached Berlin in time for a consultation on May 20th. Upon examination, he found a small sessile growth, of the size of a split bean, attached to the posterior portion of the left vocal cord, on its inner and upper surface. He urged that the proposed operation should not be performed before a portion of the growth had been removed for microscopical examination, which had not been previously done, because its small size and sessile character was believed to render it impossible. Dr. Mackenzie, however, on the following morning succeeded in removing a small piece of the growth, which, upon microscopic examination by Professor Virchow, was found to be composed of inflammatory products; the epithelial cells were increased in size and number, and the growth was pronounced benign in character. We learn that Professor Virchow also stated that, as the portion removed included a complete section of the growth and the surface of the vocal cord beneath, as clearly demonstrated by the presence of some of the longitudinal elastic fibres of the latter structure, he considered that there was no reason to suppose that any remaining portion of the growth was of a cancerous nature.

Three weeks later Dr. Mackenzie performed a second operation, removing more of the morbid growth, which, after microscopic examination of many sections, has been pronounced by Professor Virchow a pachydermia verrucosa, a term usually applied to a certain variety of elephantiasis of the cutaneous integument, subcutaneous and deeper connective tissue; and, in this instance, to the condition of the mucous membrane. The sections showed enlarged papillæ and epithelial cells, but gave no evidence of morbid elements in the connective tissue.

The Crown Prince is now in England under the care of Dr. Mackenzie, whose experience in intralaryngeal procedures for the removal of growths is probably unequalled, and his manipulatory skill unexcelled. We understand that attempts will be made to get rid of this troublesome growth by intralaryngeal procedures to the exclusion of external operations. But this does not preclude the resort to severer measures if it should be proven that less serious procedures will not suffice. That the latter do succeed at times, even in malignant cases, there is sufficient evidence. Only lately, Fränkel, of Berlin, has reported an instance of undoubted malignant growth eradicated by repeated intralaryngeal attack. Other practitioners believe that they have been equally successful in occasional instances; and, therefore, there is a fair hope for a favorable result in the present case, even if the growth were malignant.

CARDIAC EPILEPSY.

THE possibility of epileptiform convulsions coming on, due to lesions of the heart, has been recognized for a number of years, and interesting contributions have been made on the subject by such writers as Stokes, Thornton, and Blondeau, although the literature of the subject has not by any means been confined to the pen of these writers.

It will be remembered that the symptoms of cardiac epilepsy are chiefly characterized by a remarkable slowing of the pulse, so that the pulse-rate has been known to drop from the normal to not more than five beats a minute, and in a case reported by THORNTON (*Trans. Clin. Soc.*, London, vol. vii. p. 95) it was proved by the stethoscope that in the first stage of the attack the heart ceased to beat for many seconds. In some cases the heart's beat can be heard over the apex, but the patient becomes pulseless at the wrist. The respiratory movements are generally quickened at first and then become labored, and, perhaps, stertorous. The temperature of the body falls very decidedly, not only during, but before the attack, so that the complaint of feeling cold may be the only warning given of an approaching seizure, and this sensation of extreme cold occurring previous to an epileptic convulsion is, in the opinion of several writers, almost pathognomonic of cardiac epilepsy. The color of the face resembles the coloring of an ordinary idiopathic attack, being at the first pale, then red and cyanotic. The convulsive movements do not generally assert themselves during the period of unconsciousness, but they may do so, and biting of the tongue has been reported. In some instances the heart has been found after death in a state of fatty degeneration, and this, of course, points to a lack of sufficient blood-supply as being the cause of the attack. That the disease is not in every case due to organic failure of the heart, is proved by the fact that Charcot has seen such cases occur, in which after death no cardiac lesions were discoverable.

The question as to whether the nerve storm originates in the brain centres or is only secondarily produced by cardiac failure, is one which is solved with great difficulty; since it is perfectly possible to imagine that disordered nervous centres might produce not only an epileptic seizure, but also exert an influence over the heart, as, for example, by sending a powerful impulse along the pneumogastric nerves. Every physiologist knows, too, that cutting off the supply of blood from the brain by the partial ligation of the principal bloodvessels in the neck will

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produce violent epileptiform convulsions, and it has also been proved that the convulsions arising in poisonings from the cardiac depressants, which are epileptiform in character, are due to this cause, namely, starvation of nervous centres, whereby their functions are perverted or set aside. The true cause of the epilepsies supposably due to cardiac failure, cannot be considered as decided in every case, but it would seem probable that such cases may arise from both the causes mentioned.

The theory of the production of attacks, owing to deficient blood-supply, has been greatly strengthened by the recent reports of several observers, notably the very recent one of Lemoine in the *Revue de Médecine*, of May 10, 1887, in which he reports five cases of cardiac epilepsy in which valvular disease of the heart existed, and where great amelioration of the symptoms or recovery occurred upon the use either singly or together of such cardiac stimulants as digitalis and caffeine.

While the cardiac muscle was under the influence of these drugs the epileptic seizures became much less frequent, and in some cases entirely disappeared, the only symptoms remaining being vertigo on certain movements, which, however, decreased as the condition of the heart improved. Such evidence as this is of considerable weight, as it strengthens very materially the belief that in many instances the convulsion is due to the cardiac failure.

TYROTOXICON AND CHOLERA INFANTUM.

THE advance of medicine from empiricism to scientific accuracy is very largely dependent upon a painstaking investigation of the causes of disease; and the study of foods and the diseases occasioned by their decompositions, is one of the most important fields for scientific work.

While many of the recent discoveries in medicine have been made by bacteriological research, PROF. VAUGHAN has by chemical analysis isolated a poisonous ptomaine in decomposed milk, and his writings upon this subject are among the most valuable recent contributions to practical medicine.

In his interesting paper in the present number of THE NEWS, Professor Vaughan describes the conditions under which this poisonous body is formed; cites clinical cases of infection produced by it, and demonstrates its causation of cholera infantum. The rules which he lays down for the care of milk, should receive the widest publicity, and their observance will go far toward the improvement of the character of our milk supply and the eradication of that scourge of infancy—cholera infantum. His deductions regarding the treatment of this disease are of great value, and especially timely at the approach of summer, and the results of his experiments, now in progress, upon the value of different germicides which destroy tyrotoxicon, when completed, cannot fail to prove of the greatest interest.

THE Rhode Island Medical Society held its seventy-sixth annual meeting in Providence, June 9th. Officers were elected as follows:

President.—Horace G. Miller, M.D.

Vice-Presidents.—Albert Potter, M.D., and John W. Mitchell, M.D.

Recording Secretary.—William R. White, M.D.

Corresponding Secretary.—Geo. D. Hersey, M.D.

Treasurer.—Charles H. Leonard, M.D.

The Trustees of the Fiske Prize Fund reported that the prize for the current year, of $200 for the best essay on "Membranous Enteritis," was awarded to Dr. James B. Field, of Lowell, Mass. There was no award on the second subject. The subjects for the coming year are:

(1) "What Changes has Acceptance of the Germ Theory made in Measures for the Prevention and Treatment of Consumption."

(2) "Antiseptics in Medicine and Surgery; with original observations and experiments."

For the best essay on either of these themes a prize of $200 is offered under the usual conditions.

The President, Dr. Horace G. Miller, delivered the annual address on the "Bacteriology of the Eye."

THE President of the Key West Board of Health, Dr. J. Y. Porter, reported by telegraph, under date of June 5th, that "Yellow fever had ceased to be sporadic, and absolute segregation of patients in hospital impossible, as friends conceal cases, and violently oppose removing sick; therefore, for these reasons, the board will declare the disease to be fast assuming an epidemic character." Twenty-two cases and eight deaths from yellow fever have been reported up to June 10th.

THE Kings County Medical Association held its third stated meeting at Brooklyn, June 7th. The paper of the evening, by Dr. J. D. Rushmore, treated of veratrum viride as a therapeutic agent. The use of large doses of veratrum in puerperal convulsions, sometimes spoken of as "the Brooklyn treatment," came up prominently in the discussion, a circular calling for the experience of the profession having been previously sent to every registered physician of the city, from which it appeared that by very many this drug is regarded as a "sheet-anchor" in ante-partum and post-partum convulsions.

DR. CARL FRIEDLÄNDER.—This well-known pathologist died at Meran on May 13th, after a long illness, aged forty. Although a victim of progressive

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pulmonary tuberculosis, he did not abandon his scientific work to secure those climatic advantages whose value he strongly urged upon the profession. He was an early champion of the curability of phthisis, but in his enthusiasm for science devoted himself assiduously to his work. His researches upon the "Uterine Decidua," upon "Local Tuberculosis," and upon the "Proliferation of Epithelium in its Relations to Cancer," are well known.

His name is coupled, however, with the pneumococcus, whose discoverer he was; and his theory of the causation of pneumonia has received universal attention.

The *Fortschritte der Medicin*, published at Berlin twice monthly, was established by Dr. Friedländer, and is a monument to his memory. His last writing was in the discussion of the antiseptic properties of iodoform.

WE are happy to learn from the Austrian press that PROFESSOR BILLROTH'S convalescence is almost assured; it is confidently expected that after a summer of careful recuperation this distinguished surgeon will be able to resume his duties at his clinic in the autumn.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-eighth Annual Meeting, held at Chicago, June 7, 8, 9, and 10, 1887.

(Specially reported for THE MEDICAL NEWS.)

TUESDAY, JUNE 7TH.—FIRST DAY.

The Thirty-eighth Annual Session of the American Medical Association was opened in Central Music Hall, at 11 A. M., by the Chairman of the Committee of Arrangements, Charles Gilman Smith, M.D., who called the assemblage to order, and invited the Rev. S. J. McPherson to offer prayer. Dr. Smith, with an allusion to the kind feelings of the citizens of Chicago toward physicians, because, although they took a great and active part in "labor" troubles, they never struck for eight hours work or higher wages, introduced Mayor John A. Roche, who, as the official representative of the city, delivered an address of welcome.

A call for the ex-Presidents of the Association to sit upon the platform was responded to by Drs. William Brodie, T. G. Richardson, J. M. Toner, and N. S. Davis.

The Chairman of the Committee of Arrangements announced the programme of the session and the various entertainments, and called the First Vice-President, P. H. Millard, M.D., of Stillwater, Minn., to the chair.

The PRESIDENT, E. H. GREGORY, M.D., of St. Louis, then delivered the annual

ADDRESS ON CELL-ANTAGONISM.

(See THE MEDICAL NEWS, June 11th, page 645.)

DR. A. N. BELL, of Brooklyn, stated that he had a report to present to the Association.

DR. WILLIAM B. ATKINSON, of Philadelphia, moved its reference to the Section on State Medicine.

DR. I. N. QUIMBY, of Jersey City, moved that the report be read to the Association, as it had appointed the committee. The latter motion was put and declared carried.

DR. BELL then read a report on

THE SANITATION OF EMIGRANT SHIPS.

The report discussed the United States laws bearing upon the subject, which require that every vessel carrying immigrant passengers exceeding fifty in number, shall be provided with a duly qualified and competent surgeon or medical practitioner; and dwelt on the common inefficiency of the service thus required, especially in preventing the importation of disease, and of the mentally unsound or imbecile who would be added to the defective and criminal classes of the country. Unsuccessful attempts to secure the amendment of these laws had been made through the Hon. John H. Reagan, Chairman of the House Committee of Commerce. Attention was called to the low status of the medical officers, and the exemption of cabin passengers from the obligations of the law. It was urged that on all vessels carrying more than six hundred passengers and crew, other than first-cabin and saloon passengers, should be provided also with a junior or assistant surgeon. These should not only give prompt medical attendance to passengers and seamen, but should also perform the duties of sanitary officers, making suggestions to the master of the vessel, when needful; seeing that all parts are kept in good sanitary condition, and making full report to the sanitary authorities of the port of the arrival of all cases of disease, insanity, or imbecility occurring during the voyage. The medical officers should have at command a competent apothecary or medical steward, and a sufficient supply of medicines.

On motion, the report was adopted, and copies thereof directed to be sent to the Secretary of the Treasury, and to both branches of the next Congress.

CRITICISING THE NEWSPAPERS.

DR. D. J. ROBERTS, of Nashville, Tenn., referring to an editorial in the morning issue of the Chicago *Times*, offered a series of resolutions repudiating the statements made as an unwarranted, uncalled-for, and unjust attack upon the regular medical profession of the United States and its representatives here assembled, and expressing deep regret at the insult that had been offered to the regular medical profession of Chicago, and, through the American Medical Association, to the regular medical profession throughout the world.

DR. EUGENE GRISSOM, of Raleigh, N. C., urged that the Association could not afford to prostitute its high mission by controversy; and moved to lay the resolutions on the table.

Several members attempted to get the floor to discuss the motion, but it was put and carried by a vote of 133 to 89.

DR. WILLIAM BRODIE, of Detroit, Mich., moved the adoption of the proposed amendment creating

A SECTION ON DERMATOLOGY AND SYPHILOGRAPHY,

Carried.

DR. J. MCF. GASTON, of Atlanta, Ga., Chairman of the Committee to memorialize Congress on the investigation of inoculation for the prevention of yellow fever,

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asked that the report of his committee be referred to the proper Section.

Referred to the Section on State Medicine.

WEDNESDAY, JUNE 8TH—SECOND DAY.

REPORT ON THE JOURNAL.

DR. J. M. TONER, of Washington, D. C., read the report of the Board of Trustees for the publication of the *Journal of the Association;* and, as part of that report, the Editor, Dr. N. S. Davis, read his annual report to the Board of Trustees. The weekly circulation is 4,387, of which 3,478 go to members of the Association, and the remainder to subscribers, exchanges, etc. During the year the membership of the Association has increased by 104, and the weekly circulation by 116. The total expense of publishing the *Journal* was $15,920.96, of which $2,758.95 were expended for editorial work. The amount received for subscriptions (from non-members), for advertising, and for reprints, was $7,580.63; the remainder having been drawn from the treasury. It was further stated that Dr. Davis had consented to continue as editor of the *Journal* for another year.

On motion, the report was accepted and adopted.

DR. D. J. ROBERTS stated that the *Chicago Times* had made satisfactory acknowldgments as regards its assertions reflecting on the regular medical profession of Chicago and elsewhere; and begged leave to withdraw the resolutions he had introduced the previous day.

On motion, he was granted the desired permission.

DR. A. VON MANSFIELD, of Ashland, Neb., inquired how many members of the Association were receiving the *Journal* without paying for it.

DR. DAVIS could not tell, as the Treasurer received all dues for membership.

DR. N. S. DAVIS, Chairman, then read the

REPORT OF THE SPECIAL COMMITTEE ON CHANGES IN THE PLAN OF ORGANIZATION AND BY-LAWS OF THE ASSOCIATION.

This committee had been appointed under the following resolution, adopted at the last annual meeting: "*Resolved*, That a committee of nine members, including the President, President elect, and four Vice-Presidents elect, be appointed by the Chair to consider the various propositions looking to the amendment of the organic law of the Association, by the establishment of branches, or in any other way; said committee to report at the next annual meeting what measures of organization, if any, may be desirable."

The report had been drawn up by the chairman, and signed by all the members of the committee (seven) present at this meeting. The above resolution had been inspired by two considerations: *First*, the desirability of a more permanent and representative body to perform the duties now devolving upon the Committee on Nominations, and to consider other questions of importance referred to it by vote of the Association. *Second*, the desirability of increasing the paying permanent membership of the Association. The usually hasty, and often informal selection of members of the Nominating Committee, who are charged with the important duty of selecting the general officers of the Association, members of the Judicial Council, and of the Board of Trustees, besides determining upon the next place of meeting, has given rise to much adverse criticism. A committee thus hastily appointed, compelled to discharge duties of the greatest importance with equal haste, and then ceasing to exist, could not fail to commit some errors and make some injudicious recommendations.

To secure a properly organized council, or standing business committee, and an increase of paying membership, it had been proposed to remodel our organization after the plan of the British Medical Association. But the conditions here are different. The 25,000 British practitioners are included in an area scarcely as great as that of our New England States. The British Medical Association has been in existence fifty-five years, and as yet includes but half of those who are eligible to its membership. And if some of its branches become so indifferent as to neglect the election of delegates to the Council to which they are entitled, as shown by reports at the last annual meeting, how would it be if the attempt should be made to require a select Counoil of this Association to meet four times a year, composed of delegates from branches in California, Maine, Minnesota, Texas, and Florida, at some central place as Washington Philadelphia, or Chicago, for the satisfactory consideration of all its important interests?

If the practical result of the experiment of the British Association, where all the circumstances have been most favorable, has been to put the entire control of the affairs of the Association in the hands of those members of the Council in London and in the few important cities affording most ready access thereto, it requires but a moment of serious reflection to see that the evils actually developed in the progress of the British Association, would be produced with far greater rapidity and intensity, if the same machinery and methods were adopted here.

It is believed that to accomplish the promotion of personal interest between neighboring members of the profession, the general development and diffusion of medical knowledge, both scientific and practical, and unity or concert of action on questions of education, medical legislation, and the sanitary surroundings of the people, the most desirable form of organization conceivable is but an ideal representation of the actual organization of the profession in this country as it now exists. After a careful study of the development of medical organizations at home and abroad, the Committee recommend no radical changes in the existing plan of organization; but urge the preservation of its essential principles and their present accurate adjustment to the needs of the situation, the correction of minor defects in practical application, and such changes in the by-laws as will facilitate the business and scientific interests of the body.

Under existing regulations "members by application" "simply have the right to receive the *Journal* on the same terms as the members." This affords no adequate motive for seeking such membership, since any one, whether a member or not, can obtain the *Journal* by the payment of five dollars a year. Therefore the following was recommended as an

AMENDMENT TO THE CONSTITUTION, SECTION SECOND.

"Members by application shall consist of such members of the State, County, and District Medical Societies

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entitled to representation in the Association as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the President and Secretary of the Society of which they are members, and the amount of the annual membership fee, five dollars. They shall have their names upon the roll and have all the rights and privileges accorded to permanent members, and shall retain their membership on the same terms."

This would enable one or all the members of recognized State and local Societies to become *de facto* permanent members of the Association without the expense of attending a meeting.

From the fifth section of the Constitution it is proposed to strike out the first paragraph relating to the Nominating Committee, and in its place insert the following:

CREATING A GENERAL COMMITTEE OR COUNCIL.

"The General Committee or Council shall be composed of two members from each State and Territorial Medical Society entitled to representation by delegates in this Association, and from the Medical Departments of the United States Army, Navy, and Marine-Hospital Service. They shall be chosen by the members registered and present at each annual meeting, from each State, Territory, and from the Medical Corps of the U. S. Army, Navy, and Marine Hospital Service, acting separately on the third day of each annual meeting, each delegation reporting the names of the members chosen, to the permanent Secretary of the Association on the same day, that they may be announced by him at the opening of the morning session of the fourth day. At the first election each delegation shall choose two members of the General Committee, one of whom shall serve one year and the other two years; and at each annual election thereafter one member shall be chosen to serve for two years; thus making the term of office of members of the General Committee, two years. It shall be the duty of the General Committee, thus constituted, to organize by choosing annually, a Chairman and Secretary, and such sub-committees as may be found necessary to facilitate the work that may be assigned to it; to meet annually at the place and on the day preceding each annual meeting of this Association, and as often during that week as may be necessary; to nominate on the third day of each annual meeting all the general officers of the Association (none of whom shall be members of its own body), the members of the Committee of Arrangements, the Committee on Necrology, seven members of the Judicial Council, and three members of the Board of Trustees for Publication, for election by the Association; to recommend the place and time of holding the next annual meeting, and to consider and report upon all subjects that may be referred to it by vote of the Association, and particularly on all propositions involving the appropriation of money. The presence of one-third of the whole number of members elected to the General Committee shall constitute a quorum for the transaction of business. If at any annual meeting of the Association it shall be found at the close of the general meeting of the first day that a quorum of the General Committee is not present, it shall be the duty of the President and Permanent Secretary to fill vacancies in the Committee temporarily, by selections from the lists of delegates registered as present from the States to which vacancies belong."

At the annual meeting of 1883, the duties of the Committee of Publication were transferred, by resolution, to the Board of Trustees for journalizing the transactions. It is proposed so to amend paragraph three of section five of the Constitution, as to make it conform to the practice of the last four years in this matter; and to define clearly the powers and duties of the Trustees.

In addition to the above, the Committee proposes certain

AMENDMENTS TO THE BY-LAWS.

Change Section II. of the By-Laws relating to the Duties of Chairmen of Sections, to read thus:

"The Chairman of each Section shall prepare an address on the recent advances in the branches belonging to his Section, including such suggestions in regard to improvements in methods of work as he may regard important, and present, on the first day of its annual meeting, the same to the Section over which he presides. The reading of such address not to occupy more than forty minutes."

Hitherto these addresses have been made before the general meetings of the Association, but the pressure of business and the multiplication of Sections render this no longer practicable. To take the place of these addresses in the general meeting, another By-Law, to be numbered XIV., is proposed as follows:

"The Association shall annually elect, on the nomination of the Nominating Committee (or the Standing General Committee), three members of the profession, eminent in some of its departments, to deliver addresses in the general session of the next ensuing annual meeting, one on some topic or topics relating to general medicine, another relating to general surgery, and the third relating to public medicine, including under that head, hygiene, sanitation, prophylaxis, education, and medical legislation; each of such addresses not to exceed one hour in its delivery."

DR. R. REYBURN, of Washington, D. C., moved that the report be received and the Committee discharged.

DR. R. G. JENNINGS, of Little Rock, Ark., moved that the report be received and adopted.

THE PRESIDENT then put the motion to accept and adopt the report, and declared it carried.

DR. A. W. ALVORD, of Michigan, asked in what shape did this leave the amendments to the Constitution.

The PRESIDENT could not answer; but the Permanent Secretary said that Dr. Davis understood that they were adopted.

DR. I. N. QUIMBY, of Jersey City, thought that they must lie over for one year.

DR. E. GRISSOM, of North Carolina, held that they had been adopted.

The Chair decided the adoption of the report carried with it the adoption of the amendments.

DR. DAVIS said he would be glad if the amendments could now be adopted. It could legally be done by construing the resolution under which the committee was appointed, as a proposed amendment to the Constitution. In this way it had been before the Association for a year.

DR. A. B. PALMER, of Michigan, disagreed with the

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construction put upon the resolution by Dr. Davis. It should lie over.

DR. J. B. GREEN, of Indiana, said that this committee was one of consideration. Its recommendations were not before this body until this morning.

Amid great confusion, Dr. A. N. Bell, of Brooklyn, got the floor, and moved that it was the sense of the Association that these amendments had been before the Association one year and duly considered. This motion was put and declared lost. Division was called for; and the Permanent Secretary counted the votes as the members stood up in their places, and announced 272 affirmative, 232 negative. It was decided that the motion was carried. This surprised the meeting and great confusion ensued. A delegate asked if all questions were to be decided that way. The yeas and nays were called for, but the call was ignored.

DR. GREEN moved to reconsider.

DR. GRISSOM moved to table the reconsideration, and this was declared carried.

The Permanent Secretary then announced the

NOMINATING COMMITTEE.

Alabama, W. C. Cross; Arkansas, D. E. Ewing; California, J. W. Robertson; Colorado, P. Drummond; Connecticut, W. H. Whittimore; District of Columbia, J. M. Toner; Florida, M. B. Phillips; Georgia, A. G. Whitehead; Illinois, E. P. Cook; Indiana, T. B. Harvey; Iowa, W. Watson; Kansas, W. L. Schenck; Kentucky, D. S. Reynolds; Louisiana, T. G. Richardson; Maine, D. E. Marston; Maryland, T. B. Evans; Massachusetts, E. W. Cushing; Michigan, W. Brodie; Minnesota, J. E. McGaughey; Mississippi, T. R. Trotter; Missouri, J. M. Allen; Nebraska, W. M. Knapp; North Carolina, Eugene Grissom; New Hampshire, J. W. Parsons; New Jersey, Lott Southard; New York, Darwin Colvin; Ohio, X. C. Scott; Pennsylvania, E. A. Wood; Rhode Island, Wm. J. Burge; South Carolina, T. Legare; Tennessee, J. B. Murfree; Texas, R. W. Park; Vermont, S. H. Griswold; Virginia, H. M. Nash; Wisconsin, J. K. Bartlett; U. S. Navy, D. Bloodgood; U. S. Marine Hospital Service, H. M. Goldsborough; Dakota, E. M. Dow; New Mexico, Russel Baily.

A Committee of the American Pharmaceutical Association presented the following resolution which the Pharmaceutical Association had adopted at its last annual meeting.

"*Resolved*, That this Association solicits the aid and coöperation of the American Medical Association in promoting the prescribing by physicians, of officinal medicines only, or such preparations as have published formulas, in preference to others."

On motion the communication was received.

The Chairman of the Section on Surgery and Anatomy, Dr. H. H. Mudd, of St. Louis, being absent, his address was read by title.

DR. J. S. LYNCH then delivered his address as Chairman of the Section on Practice of Medicine.

The meeting then adjourned.

THURSDAY, JUNE 9TH.—THIRD DAY.

Dr. William Brodie, Chairman, presented the report of the Nominating Committee, recommending the following for

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. A. Y. P. Garnett, of Washington.

Vice-Presidents.—Drs. Duncan Eve, of Tennessee; Darwin Colvin, of New York; Charles J. O'Hagan, of North Carolina; A. Stedman, of Colorado.

Librarian.—Dr. C. H. Kleinschmidt, of Washington.

Treasurer.—Dr. R. J. Dunglison, of Philadelphia.

Assistant Secretary.—Dr. J. S. Ransohoff, of Cincinnati, Ohio.

Trustees of Journal.—Drs. L. Connor, of Detroit, Mich.; E. O. Shakespeare, of Philadelphia; W. T. Briggs, of Nashville, Tenn.

Members of the Judicial Council.—Drs. J. Murphy, of Minnesota; J. M. Toner, of District of Columbia; J. K. Bartlett, of Wisconsin; A. B. Sloan, of Missouri; X. C. Scott, of Ohio; A. W. McClure, of Iowa; J. W. Stormont, of Kansas; and J. F. Hibberd, of Indiana.

Place of meeting, Cincinnati, Ohio; *Time*, the third Tuesday in May.

Chairman of the Committee of Arrangements.—Dr. W. W. Dawson, of Cincinnati.

DR. MILLARD moved that the report as read be received and adopted; and the Committee directed to report the names of three members to deliver the addresses before the general meetings of the next annual session, in accordance with the newly adopted by-laws. Carried.

The choice of the various Sections for officers for the ensuing year was then announced. The list of

CHAIRMEN OF SECTIONS:

Anatomy and Surgery.—Donald McLean, of Michigan.

Practice of Medicine.—A. B. Palmer, of Michigan.

State Medicine.—H. B. Baker, of Michigan.

Obstetrics and Diseases of Women.—Ely Van de Warker, of New York.

Oral and Dental Surgery.—J. Taft, of Ohio.

Ophthalmology, Otology, and Laryngology.—F. C. Hotz, of Illinois.

Diseases of Children.—F. E. Waxham, of Illinois.

Medical Jurisprudence.—E. Miller Reed, of Maryland.

Dermatology and Syphilography.—L. Duncan Bulkley, of New York.

DR. N. S. DAVIS called attention to the need for the members from each State getting together and selecting two members of the General Standing Committee, in accordance with the amendments to the Constitution adopted yesterday.

DR. W. T. BISHOP, of Pennsylvania, asked how this confusion had arisen as to whether the amendments affected the Constitution or the By-laws?

THE PRESIDENT said there appeared to be some dissatisfaction regarding this matter [A member—"A great greal of it"], and that he felt that he was the head and front of the offending. Now he desired, above all things, to do right, and wished to offer this written statement: "It is the opinion of the Chair that some mistakes were made in the decisions yesterday. Those portions relating to the adoption of the amendments to the Constitution clearly should lie over for one year, while the amendments to the By-laws may be adopted at once."

On motion, it was decided that the proposed amend-

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ments to the Constitution be not adopted, but lie on the table, subject to ratification at the next annual meeting.

THE RUSH MONUMENT COMMITTEE,

through its Secretary, DR. George H. Rohé, of Baltimore, read a report of progress. $389 had been collected, of which $140.08 had been expended for printing, etc. Referred to a committee of three: Drs. Grissom, Garcelon, and Palmer, to audit.

DR. ROHÉ read a letter from Dr. D. Hack Tuke, of London, inquiring if foreign contributions would be received.

DR. RANNEY, of Michigan, stated that at the recent meeting of the Michigan State Medical Society, $100 had been appropriated for the monument fund.

In the absence of the Chairman, DR. JOHN MORRIS, of Baltimore, read the report of the special committee on

CREMATION,

closing with the following resolution:

Resolved That it is the judgment of the American Medical Association that the burial of all persons dying of zymotic diseases should be placed by law under the control of the health authorities, and in all such cases of disease chemical agents should be used by such authorities to bring about a rapid disintegration of the dead body.

This was referred to the Section on State Medicine for discussion,

DR. J. MCF. GASTON, of Georgia, offered a series of resolutions calling on the President of the United States to appoint two additional members of the Commission for the

INVESTIGATION OF YELLOW FEVER;

one to have a practical clinical acquaintance with the fever; the other qualified to communicate with the population of the localities in which it occurs.

DR. GEO. H. ROHÉ moved to lay the resolutions on the table. This was lost, and the resolutions adopted.

DR. F. M. JOHNSON, of Kansas City, Mo., Chairman of the Section on Obstetrics and Diseases of Women, delivered his address.

DR. GEO. H. ROHÉ, of Baltimore, Chairman of the Section, delivered an address on State Medicine.

DR. J. S. KNOX, of Chicago, Chairman of the Section on Diseases of Children, read an abstract of an address on *Diathesis and Disease in Early Life.*

THE REPORT OF THE TREASURER

was read. It showed for last year, total receipts, $21,723.22; total disbursements, $20,319 43; leaving balance in the treasury of $1403.79.

THE REPORT OF THE LIBRARIAN

was read, showing the addition of 158 new titles to the Library during the year.

On motion of Dr. J. F. Hibberd, of Indiana, the report was received and $10 appropriated for a copy of the *Index Medicus.*

A communication was received asking for an

APPROPRIATION FOR THE INTERNATIONAL MEDICAL CONGRESS.

DR. DAVIS moved the appropriation of $500 for the purpose.

An amendment was offered making the sum $1000.

It was stated that but few understood the need for additional funds; but $12,000, including the appropriation made by Congress, were yet available; and unless at least $40,000 or $50,000 could be raised the Committee on Organization of the Congress would be most seriously hampered in its work. The amended motion was carried.

FRIDAY, JUNE 10TH.—FOURTH DAY.

The Nominating Committee appointed the following to deliver

THE ADDRESSES

in the general meetings next year:

On Medicine, R. Beverley Cole, of California.

Surgery, E. M. Moore, of New York.

State Medicine, J. S. Cabell, of Virginia.

It was recommended that a committee of three be appointed to notify these appointees, and to fill any vacancies that might occur in this list prior to the next annual meeting.

On motion, the report was adopted, and Drs. Toner, Grissom, and Colvin appointed as such committee.

DR. J. B. HAMILTON, of Washington, D. C., offered resolutions requesting the Senate and House of Representatives to cause such number of copies of the report of Dr. Sternberg, the Commissioner to investigate the

PREVENTION OF YELLOW FEVER BY INOCULATION,

printed as should be required by the medical profession of the country; and rescinding the resolutions adopted the day before asking for the appointment of additional Commissioners.

DR. ROHÉ believed that the members did not understand yesterday the true state of the case. The President had fully complied with the law as passed by Congress and could do no more. Dr. Sternberg was already in Brazil engaged in the investigation.

The previous question was then moved on Dr. Hamilton's resolutions, which were put and carried.

DR. J. S. MARSHALL, of Illinois, Chairman of the Section, delivered the Address on Oral and Dental Surgery.

DR. I. N. QUIMBY, of Jersey City, N. J., delivered the Address on Medical Jurisprudence.

DR. ALONZO GARCELON, of Maine, on behalf of the Auditing Committee reported the accounts of the Treasurer correct and properly vouched.

DR. N. S. DAVIS, as Chairman of the Standing Committee on Meteorological Conditions and their Relations to Disease, and on the Collective Investigation of Disease, reported that he had not been able to arrange the material in hand so as to form from it a report of value, but hoped to be able to attend to it in the future.

Accepted as a report of progress and the Committee continued.

DR. N. S. DAVIS then offered the following:

Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education and a term of professional study equal to the best class of the medical colleges of the country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery in place of practical and clinical instruction in general

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medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulations as other members.

He said a Section on Oral and Dental Surgery had been established in the Association, also in the proposed Ninth International Medical Congress, and some such action was required to draw the line indicating who could be properly admitted to these Sections. Of yet greater importance is the influence it will exert toward raising the standard in the schools of dentistry. The resolution was adopted.

DR. DAVIS offered the following also:

Resolved, That the Committee of Arrangements are hereby directed at each annual meeting of the Association so to arrange the programmes regarding entertainments and receptions that the evening of the third day be reserved for a regular annual dinner, under the following general regulations: The chief registration officer shall provide for each registration table a paper headed, "Annual Dinners of the American Medical Association," with two columns for names, one headed tickets without wines or liquors at a specified sum; the other, tickets with wines, etc., at a specified sum; that each member when registering can have the opportunity to take a ticket for the dinner if he desires it, and can be entirely free to enjoy the dinner, not only without using wines, but, also, without being required to assist in paying for that drunk by others; while those who desire the addition of wines will enjoy the same liberty. It shall be the duty of the Committee of Arrangements to select a proper place for the dinner, to ascertain the cost per plate on the plan already indicated, that the price paid for the tickets will pay the entire cost of the dinner, leaving no part to be paid either by the local profession or by the Treasurer of the Association. Each man having to pay for his dinner would effectually limit the expense. The plan had proven satisfactory in the British Medical Association.

DR. WILSON, of Boston, moved that an honorarium of $300 be granted the Permanent Secretary.

DR. DAVIS stated that the money was needed for the *Journal*, and that the Permanent Secretary already had his expenses paid, including all expense connected with attendance on the meetings. He moved, as a substitute, that all such propositions to appropriate money be referred to the Trustees of the *Journal*. This substitute was carried.

On motion of Dr. A. B. Palmer, the Committee on Sanitary Police, Dr. A. N. Bell, Chairman, was continued.

DR. D. J. ROBERTS, of Tennessee, moved that a committee of five be appointed to report on the legal regulation of medical practice. As such a committee had already been appointed in the Section on State Medicine, the resolution was referred to that Section.

DR. J. M. TONER offered the following:

Resolved, That the Presidents of all State and Territorial Societies entitled to representation in this Association shall be *ex-officio* honorary Vice-Presidents of the Association, and entitled to seats upon the platform.

DR. JENNINGS, of Arkansas, thought there were enough on the platform now, that most of the business was transacted there already.

The resolution was laid upon the table.

On motion of Dr. E. A. Wood, of Pittsburg, Pa., a committee of three was appointed to investigate the subject of dietetics, and report at the next meeting. Dr. E. A. Wood, of Pittsburg; J. T. Whittaker, of Cincinnati; and F. Woodbury, of Philadelphia, were appointed.

A telegram was received from the President-elect, Dr. A. Y. P. Garnett, expressing his sense of the honor shown him, and regret at his inability to be present.

On motion of Dr. Wm. Brodie, the thanks of the Association were tendered the citizens of Chicago, the medical and secular press, and the railroads from which courtesies had been received.

DR. GREGORY, in a few appropriate remarks, closed the session.

In the afternoon many of the members took part in an excursion to the town of Pullman.

THE ASSOCIATION OF AMERICAN PHYSICIANS.

Second Annual Meeting, held at Washington, June 2 and 3, 1887.

THURSDAY, JUNE 2D.—AFTERNOON SESSION.

DR. HENRY HUN, of Albany, reported some

CASES OF SEWER-GAS POISONING.

He thought it probable that the following diseases may result from sewer-gas poisoning: vomiting and purging, separately or combined; general debility; fever; sore throat of a diphtheritic type; neuralgia; and perhaps, also, myelitis of the anterior horns. These conditions are frequently combined. Fever is frequently associated with the other symptoms. There is one group of symptoms which is almost always present, and that is, loss of appetite, extreme prostration, and pain in the head. When this occurs as a chronic condition we are justified in suspecting that the patient is suffering from sewer-gas poisoning. He reported in detail twenty-nine cases.

DR. W. W. JOHNSTON, of Washington, said that the theory of sewer-gas poisoning has gradually taken the place of malaria as the supposed cause of many obscure conditions, just as malaria superseded the hepatic origin of disease. The theory which attributes many of these conditions to the presence of sewer gas has not been proven. In an examination of a number of men working in the sewers of this city, it was found that they were more healthy than those who worked above ground, and the same observation has been made in other places.

DR. ISRAEL T. DANA, of Portland, Me., reported

A CASE OF ANEURISM OF THE ABDOMINAL AORTA

in a man of thirty. The most prominent symptom was a constant sensation of throbbing and pulsation centring in the epigastrium. Exacerbations occurred on slight exertion or on excitement, and also often on waking in the morning. More or less tenderness existed in same region, varying at times both in intensity and area. He was also subject to sensations of faintness and sinking, referable to the same region. There was a history of an accident in August, 1884, to the small of the back.

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Exploration of the abdomen anteriorly revealed the existence of a small, equally expansile tumor just above the level of the umbilicus. There was a single impulse related to cardiac systole, with no backstroke. A distinct blowing sound was heard. On examination posteriorly, there was found a distinct independent centre of motion and sound. The sound was doubly sharper and more intense than that heard in the precordial region, and possessed of a well-marked "booming" quality. It was as if a miniature heart were there. Between this centre of sound and the lower left interscapular region where the normal heart sounds could be faintly heard, there intervened an area of silence.

The diagnosis was a small traumatic aneurism of the abdominal aorta just after its passage through the diaphragm; also some inflammation of the aortic coats, higher up.

The treatment consisted of: (1) absolute rest in bed for two months; (2) restricted diet of bread, meat, milk, and cocoa, the amount of which was limited; (3) iodide of potassium, twenty grains four times a day. Immediate improvement ensued within the first week, and he continued to gain in power till by the middle of November he could walk and ride about carefully.

On May 9, 1887, he began light work at the paper-mill. He had regained the twenty-five pounds of lost weight, ate well, slept well, and had but little palpitation, though excitement, physical or emotional, readily induced a slight return of some of the old sensations.

Physical examination at this date revealed anteriorly the existence of the aneurismal mass, perhaps a little diminished in size, while the blowing sound was scarcely audible. The impulse and expansion were markedly reduced. On examination posteriorly the independent centre of pulsation and double sound was found, but both motion and sound were greatly reduced in amount and the booming quality was gone.

The conclusion was that a practical cure had taken place, the sac having become largely filled with concentric layers of fibrine; and that reduction of the existing inflammation of aortic coats higher up had been effected.

The estimate of chances of final complete recovery was not considered encouraging. The circumstances of the patient were not favorable to such rest, recreation, and tranquillity of mind as might be desirable; and even with all external conditions at the best, there would yet be too many dangerous liabilities remaining, such as embolism, pyæmia, atheromatous degeneration, etc. The quick improvement under treatment is noticeable. The patient himself attached great value to the iodide of potassium, which he still takes; he feels so much better while taking it, that he is unwilling to leave it off.

EVENING SESSION.

DR. W. H. WELCH, of Baltimore, opened the discussion on

HEMORRHAGIC INFARCTION.

He referred to the different theories which had been advanced to explain the occurrence of hemorrhagic infarctions. These are: 1, the changes in the walls of the artery obstructed; 2, the increased pressure with which the blood is sent in from the collateral circulation; and 3, a regurgitant flow of blood from the veins. Numerous experiments had been performed by the author, with the assistance of Dr. Mall, of Johns Hopkins University, to determine which of these theories was the correct one. Hemorrhagic infarctions were produced in the intestines of dogs, and the method of experimentation was given in detail. He presented, as the result of his studies, the following conclusions:

1. The blood which produces hemorrhagic infarctions comes chiefly, if not exclusively from the collateral vessels.

2. Hemorrhagic infarctions in the intestine cannot take place merely from a reflux of blood from the veins.

3. The blood-pressure is very low in the region where hemorrhagic infarction occurs, in consequence of occlusion of the main artery.

4. A certain degree of force of the collateral circulation is required to produce a hemorrhagic infarction.

5. No positive proof exists that a change in the vascular walls is essential to the production of a hemorrhagic infarction.

6. The hemorrhage occurs by diapedesis.

Where hemorrhagic infarction has taken place, the large and small veins are widely dilated with blood, and the arteries contain a smaller quantity of blood than normal. There is stasis in many of the veins and capillaries.

DR. WILLIAM OSLER, of Philadelphia, the conferee, referred to the *clinical aspects of the subject*. Among other cases coming under his observation, he reported the following: J. M., aged twenty, admitted to the Philadelphia Hospital, October 10, 1886. He had never had syphilis, and was a healthy-looking man. He presented a clear history of typhoid fever, with a sickness of six weeks, two years previously. His present illness began with diarrhœa one week before admission. For two days he had attacks of bleeding at the nose. There was temperature of 102°, with pain in the abdomen. There was no cardiac murmur, and examination of the lungs gave negative results. The splenic dulness was increased. By October 15th the temperature had reached 103°. There was almost constant delirium. There was some diarrhœa. Coldness of the feet appeared, and continued to increase in degree, and extended up the leg. The legs became livid, and no pulsation could be detected in the femoral and popliteal vessels. The patient died on the 17th. It was supposed that there was thrombosis of the iliac veins, with gangrene of the legs, which is one of the rare sequences of typhoid fever. At the autopsy it was found that the lower portion of the abdominal aorta and also the two iliac arteries were plugged with thrombi. There was general peritonitis. The right kidney presented a red-brown infarction. There were no ulcerations in the bowel; no endocarditis, The lungs were normal; there was an infarction in the spleen. During life the blood was examined for microbes, but none was found. After death microbes were found in the spleen.

Hemorrhagic infarction of the liver, under ordinary circumstances, is impossible. A. B., a hard drinker was admitted to the hospital September 27th. His illness began in the previous June with vomiting and swelling of the abdomen. The dropsy steadily increased. He died two days after admission. At the autopsy a large amount of fluid was found in the peritoneal cavity. There was nothing special found in the heart or lungs. The

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liver was remarkably cirrhotic; through the right half of the right lobe there were scattered numerous reddish-brown areas. The walls of the portal vein were thickened, and a large brown thrombus occupied the upper portion of its trunk; the branches passing to the right lobe were filled with clots. The hepatic artery and vein were normal. In this case the hemorrhagic infarctions were in all probability due to the cirrhosis of the liver, which had caused more or less obstruction of the branches of the hepatic artery. The only other case of infarction of the liver which the speaker had been able to find was one reported by Recklinghausen.

In the intestine hemorrhagic infarctions are met with in two forms, one involving the mucosa, the other affecting the entire gut. The former not infrequently ends in ulcerative necrosis. The latter form of hemorrhagic infarction is not common in man. In the horse it is frequently seen resulting from thrombi formed from verminous aneurisms of the mesenteric and its branches. This is a common cause of the severe and fatal colic so frequently seen in these animals. In conclusion, the speaker referred to the fact that in the lung it is not uncommon to have a vessel blocked without the production of an infarction. An occasional cause of thrombotic infarction is local disease of the pulmonary artery. It sometimes results from the endarteritis induced by beginning tubercular processes.

DR. R. H. FITZ, of Boston, reported a case which, in his experience, is quite unique. It was that of an elderly man with globular thrombi in the left ventricle. Emboli were transferred to the splenic artery, but at first were not sufficient to occlude the vessel completely. The spleen became enlarged, and thrombi formed in the splenic veins, and from this point the thrombus extended into the superior mesenteric vein. As a consequence hemorrhagic infarction occurred in the intestine.

(*To be continued.*)

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Fourth Annual Meeting, held at Baltimore, May 31 and June 1, 1887.

EVENING SESSION.

DR. FRANK DONALDSON, JR., of Baltimore, read a paper on

THE CAUSES OF CARDIAC FAILURE IN HIGH ALTITUDES.

The important fact that there is often great dyspnœa and sudden cardiac failure in going from low to high altitudes has not been sufficiently emphasized. Many patients are sent for general or special reasons to high altitudes, and are thereby done great injury, especially if they suffer from any form of functional or organic heart disease. From some experiments with the pneumatic cabinet, he had come to the conclusion that this treatment should not be employed in cases in which there is any valvular disease of the heart or fatty degeneration of its walls. Before being subjected to treatment in the cabinet, an examination of the heart should always be made. It has been asserted that the cause of the cardiac failure in ascending to high altitudes is want of oxygen. The speaker had performed certain experiments with reference to this point. At altitudes within ten thousand feet there is still sufficient oxygen to supply the hæmoglobin. In ascending to high altitudes the pressure of the air within and without the lungs is the same, but on the heart the action is different. The pressure is removed from the outer surface of the heart while the internal blood pressure remains the same. There, consequently, must be dilatation of the heart walls. This, in the author's opinion, was the cause of the heart failure under these circumstances.

DR. F. C. SHATTUCK, of Boston, then reported

SOME HOSPITAL CASES OF PHTHISIS; MARKED IMPROVEMENT UNDER GENERAL TREATMENT, WITH SPECIAL REFERENCE TO ALIMENTATION.

The cases had been treated in the Good Samaritan Hospital, of Boston, which is devoted to the care of chronic disease. Many of the patients had been exposed to unfavorable hygienic surroundings. The treatment employed was devoted largely to improvement of the general condition. Search had been made for a specific treatment, and if the disease is of a parasitic nature, it is natural to suppose that such a treatment would be of avail. At present no such method of treatment is known. There are few individuals to whose lungs, at one time or another, the bacillus does not gain access. The fact that certain individuals are affected while others escape, forces us to believe that there is a predisposition to the disease. The treatment employed by the author had consisted in relieving symptoms, improving the digestion, and in the administration of as much food as the patient could take in the natural way. Artificial feeding had not been resorted to, but the patient was fed six or seven times a day. From two to ten raw eggs with milk were given daily to each patient. Alcoholic stimulants were not administered as a routine treatment, but were used only temporarily for special purposes. He had for several years been systematically cutting down the quantity of alcohol used in chronic cases, and had seen no reason to regret it. His experience had been that alcohol was not used with sufficient discrimination in chronic cases of disease. Beef, milk, eggs, and other nourishing articles are more expensive than alcohol, but if they can be consumed in sufficient quantity, they are more useful. In 1883, the amount expended per patient for alcoholic liquors had been $2.70, while in 1886 it had been only 34 cents. The patients received no injury even if they were not benefited by this reduction. Eight cases of well-marked phthisis were reported in which a decided gain in weight and general improvement resulted from the employment of the plan of treatment above described. About sixty cases had been under treatment.

DR. BRUEN said that diet, climate, and suitable hygiene are the most important of the therapeutic measures under the control of the profession. It is possible by climatic and dietetic treatment so to change the nature of the tissues that they shall not be suitable culture media for the growth of the bacillus of tuberculosis. He referred more particularly to the use of the Bergeon method by the injection of sulphuretted hydrogen. To antagonize the specific cause of the disease, this method has been a failure, so far as his experience goes. Since February last he had had under treatment sixty-one cases by this method. Systematic examinations of the sputa have been made by Dr. E.

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O. Shakespeare. There has been no apparent reduction in the number or change in the character of the bacillus. This method should be classed among the methods at our disposal for the treatment of this disease. The good effects in his hands had been reduction of temperature, reduction of expectoration, very often a complete suppression of bronchial catarrh, and relief of cough. This leads to improved digestion and enables the dietetic treatment to be carried out with great thoroughness. Forty-four of these cases showed improvement to a certain extent, the average gain in flesh being about five pounds. In one-half of the cases the temperature has been brought to the normal, while in the remainder, although the temperature has not been brought to normal, it has been reduced two or three degrees. In fifteen cases the results have been negative, but in no case did any harm follow the use of this plan of treatment. The improvement has been most marked where there was considerable catarrhal element. Those cases in which there has been more or less thickening of the lung, with the general symptoms well marked, wasting, loss of flesh and weight, without much rise of temperature, were not specially benefited by the injection of gas. He had the opportunity of making a post-mortem in one case which had been subjected to this treatment. Although the cavities in the lungs were unusually clean, he did not observe any evidences of cicatrization. With reference to the strength of the solution, he had not found strong solutions at all satisfactory. The best results have been obtained from a solution of five grains of sulphide of sodium with five grains of chloride of sodium in one and a half pints of water. He had never found it desirable to administer more than a gallon and a half of gas at one time, and insisted that the injection be made slowly and that one-half to three-quarters of an hour should be occupied in its administration. He had not derived as much satisfaction in the treatment of the various forms of phthisis referred to, from any method as from the injection of sulphuretted hydrogen. He had always tested the breath for the presence of sulphuretted hydrogen. He had negative results in at least eight out of every ten cases.

DR. S. S. COHEN, of Philadelphia, remarked that the experience of Dr. J. Solis Cohen and himself differed in some respects from that of Dr. Bruen. They have obtained the most decided benefit from strongly impregnated waters. The best results were obtained in those cases in which the patient had a decided taste of sulphuretted hydrogen which continued for two or three hours after injection. The best effect has been obtained in those cases in which suppuration is about beginning. Bergeon states that the treatment is directed especially to the suppurative process. In employing this measure, great attention must be paid to detail. In about fifty per cent. of the cases, the condition has been greatly ameliorated; in twenty-five per cent. there was slighter amelioration; while in the remaining twenty-five per cent. there was more or less benefit to certain symptoms. He had not seen a case in which no results were obtained.

DR. JAMES T. WHITTAKER, of Cincinnati, had for a month used sulphuretted hydrogen by inhalation, having previously employed it for a month by injection. He began the use of inhalation carefully, and finding it well borne, had pursued the method more boldly. He puts the patients in the cabinet and allows them to have all the gas they will take. It has produced no unpleasant results in any case. The effects obtained have been about the same as those resulting from injection. In about one-third of the cases there were no results. He had searched the literature for records of bad results following the use of sulphuretted hydrogen, and had found only two in which a fatal result followed. It has been asserted that the good effect is due to the carbonic acid, but he was entirely incredulous as to the effect of this agent.

DR. CURTIN had followed the recommendation of Dr. H. C. Wood, that the sulphuretted hydrogen be taken by the stomach, using a saturated solution through which carbonic acid has been passed. He had tried this in four or five cases, and had had the same effects as from injection.

DR. MUSSER had used the gaseous injections to a certain extent, but his results have not been as marked as some which have been reported. His best results have been in two cases. One was a case of incipient phthisis in which the patient gained thirteen and a half pounds in four weeks. The second case had gained eight pounds in four weeks and had much improved in general condition. He attributed his want of good results in part to the want of enthusiasm on the part of those whose duty it was to carry out the details of the treatment.

DR. SHATTUCK had used the sulphuretted hydrogen gas, and in several patients it produced collapse in varying degrees, with weak pulse, nausea, vomiting, and headache. In several other cases, although the treatment was well tolerated, it produced no good effect. In one case of asthma with chronic bronchitis and emphysema, thirty-four injections of the gas were given. While the treatment did not disturb the patient, it did no good. With the use of the gas was combined the administration of iodide of potassium and other remedies, and the patient recovered in about the same time as on a previous occasion when the latter remedies were given and no gas used.

DR. B. F. WESTBROOK, of Brooklyn, then read a paper on

THE LOCAL TREATMENT OF DISEASES OF THE RESPIRATORY ORGANS.

The methods of treatment which had been employed were the direct introduction of coarse sprays, the use of the Evans' inhaler, and the use of the pneumatic cabinet.

In cases of chronic bronchitis where the cough is severe, a spray of a solution of carbolic acid, fluid extract of hyoscyamus, or other sedative remedies, is employed. Where there is copious secretion astringents are called for, and of these tannic acid, iron salts, and fluid extract of pinus canadensis have been employed. The pneumatic cabinet has been used with marked success in the treatment of chronic bronchitis. The patient is confined in the cabinet under a diminished pressure, the sitting lasting from ten to fifteen minutes. This may be combined with the inhalation of the spray. If there is much emphysema the cabinet is not indicated. In using the cabinet in the treatment of chronic interstitial pneumonia and bronchiectasis, there is danger if the pressure is great of producing emphysema of those

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portions of the lung still accessible to the air. The pressure should not exceed one-half an inch of mercury.

In the treatment of phthisis the best results are obtained in the early stages of the disease, or where the disease, although further advanced, is limited to a small portion of the lung. The use of sprays is beneficial only in so far as we desire to treat the coexistent bronchitis or cavities connected with bronchi of the second or third order. In incipient phthisis with very little bronchial catarrh, local treatment is probably of little service. These cases are best treated with compressed air. In a large proportion of the cases we may hope to render the disease latent. The expansion of the lung favors the expectoration of the contents of the smaller tubes and modifies the intrathoracic circulation. The sittings should be frequent—every day or every second day. Ten minutes is usually sufficiently long for the patient to remain in the cabinet. The pressure should gradually be increased up to one-half or three-fourths of an inch. If used cautiously, this is the best method for the local treatment of incipient phthisis. With the Evans' inhaler his results had also been satisfactory.

In the treatment of advanced cases of phthisis, the first effort must be to cure or diminish the bronchitis. The pneumatic treatment then comes into play. This gives better expansion, improves the circulation, and alters the action of the trophic nerves. In all cases internal medication has been combined with the local treatment. The more acute the disease the higher the fever, and the more sudden the onset the less can we expect to accomplish by treatment. In no case diagnosticated as acute phthisis did treatment have the slightest effect.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Ninth Annual Congress,
held in New York, May 26, 27, and 28, 1887.

(Specially reported for THE MEDICAL NEWS.)

DR. J. SOLIS COHEN opened the discussion on

THE TREATMENT OF LARYNGITIS IN PROFESSIONALS WHO ARE UNABLE TO REST.

He did not know that he was any better able to treat these cases without rest than are others. Sometimes a professional will consult him with hoarseness the result of acute laryngitis, and want to use his voice in a few hours. The best method to accomplish this that he had found has been the administration of a sharp emetic, and then let the patient rest until the time of the performance, sucking pieces of ice and keeping a cold compress to the neck. In chronic laryngitis he had found nothing of the same service as the use of a weak solution of sulphate of zinc, two grains to the ounce, used in a spray apparatus. In the intervals of the play the patient may inhale a little compound tincture of benzoin, if he finds that he is hoarse. Another remedy of considerable service is the use of a respiratory with turpentine, terebene, or eucalyptol, or something of that kind. He sometimes directs the patient to sprinkle a little turpentine on the floor of the bedroom. He was, however, not aware of any special method which is adapted to this class of individuals.

DR. T. A. DEBLOIS had had some experience with these cases, and had endeavored to keep up the systematic use of sulphate of zinc, but had found that the hoarseness continued unless the voice is rested. He had occasionally to treat vocalists who could spare a few hours, and had found excellent results from the use of nitrate of silver, and the most disastrous results from the use of cocaine. There seems to be a certain amount of relaxation following the use of muriate of cocaine. He thought that it may be said that, in these cases, unless there is rest there is no cure.

DR. BEVERLY ROBINSON, of New York, stated that his experience with the class of cases under discussion would lead him to believe that, so far as the acute cases are concerned, there are milder measures than an emetic. He had found that under these circumstances the use of tablet triturates of chloride of ammonium repeated as often as once every fifteen minutes, is one of the most efficient methods of overcoming the difficulty. For local application he did not think that there is anything better than the carbolized spray. In the chronic form of laryngitis in vocalists he believes that we cannot obtain much information from the appearance of the mucous membrane. In these cases he has often found the membranes red, and this may continue after the trouble with the voice has disappeared. He believes that here the trouble is chiefly in the nervo-muscular apparatus. He has found the internal use of a good wine of cocoa, with the application of a faradic current to the neck, very useful. The faradism should be repeated once or twice a day.

DR. BOSWORTH remarked that he believed that there is no such disease as laryngitis, as that term is used to mean an inflammatory process. The seat of the disease is not in the larynx, but in the nasal passages. If cocaine is applied to the nasal mucous membrane, causing contraction of the bloodvessels, and followed by the use of chromic acid, thus eliminating the cold in the head, it will usually be found that the laryngitis has disappeared. Relaxation has been spoken of as following the application of cocaine. Although he has used the drug in many cases, he has seen this result in only two, and they were cases of hay-fever. His method of using cocaine is to suspend it in fluid cosmoline, and direct the patient to spray the nose and inhale it.

DR. SAJOUS had treated many cases of this trouble. The action of cocaine in laryngitis is pernicious. He has used it in a four and in a ten per cent. solution, and every time that he has done so, has had occasion to regret it. In cold in the head cocaine is useful, but it should not be used within four hours of the time when it is desired to use the voice. In the majority of the cases of chronic laryngitis the condition is due largely to fatigue. He has found that the use of cocaine and nux vomica internally, and the external use of a weak faradic current, are the best measures to employ.

DR. GLASGOW, in this class of cases, had devoted himself entirely to the larynx, and had not treated the nose. He employed applications of carbolized iodine to the larynx. This is a soothing application, and relieves congestion. It also acts as a stimulant, and enables the person to keep at his work, but it does not cure the condition.

DR. MORRIS J. ASCH, of New York, thought that the best way to treat the acute cases is that which we pursue

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in other acute cases. The treatment suggested by Dr. Cohen, with the omission of the emetic, is useful. The employment of muriate of ammonium is useful. He gives it in solution in compound liquorice mixture which contains a little tartar emetic. The chronic cases are more difficult to treat, because the patients cannot quit work. He had found nothing equal the application of astringents. He used the spray in some cases, but more good is done by the use of the brush. The solution which he most frequently uses is one of the perchloride of iron, thirty to sixty grains to the ounce. Where a person has to use the voice in a few hours, a single application will put them in a good condition temporarily. Another point to be considered is that these individuals usually live irregular lives, drinking wine and eating heartily. There is, therefore, nearly always some hepatic trouble which requires attention. He did not believe that it is possible to put the larynx of a singer in perfect order as long as he has to work.

DR. HOOPER said that in these professionals there is sometimes an alteration in the quality of the voice, the result of over-exertion. Here there seems to be want of tension in one vocal cord. To relieve this he used electricity outside, with the internal use of aromatic spirits of ammonia, thirty to forty drops in half a glass of soda water.

DR. MACKENZIE thought that Dr. Bosworth was to a great extent right with reference to the dependence of laryngeal disease on nasal trouble. He thought that the vast majority of cases of laryngitis are associated with disease of the nasal passages, and upon the recognition of this fact depends the successful treatment of many cases of chronic laryngitis. While he admitted the existence of chronic primary laryngitis, he considered that the majority of cases are due to disease higher in the respiratory passages. He cautioned against the indiscriminate use of cocaine in diseases of the nose and throat. He would never use it just before a person was going to use the throat. The sensation which it produces in the larynx is only next to that of hanging. In the nose the effect is very pleasant, provided some of the solution does not trickle into the nose or larynx.

DR. WESTBROOK thought that while it is true that many of these singers and elocutionists suffer from strain and overwork, it is probable that in the majority of cases the seat of the whole trouble is in some derangement of the digestive apparatus, which predisposes to these affections. He thought, therefore, that an emetic or active purgative is indicated in many of these cases. After the emetic he gives small does of the mineral acids frequently repeated, say one or two drops of dilute muriatic or nitric acid repeated every hour.

DR. CHARLES H. KNIGHT, of New York, then read a paper on

THE GALVANO-CAUTERY IN THE TREATMENT OF HYPERTROPHIED TONSILS.

He first referred to the objections to the cutting operation. The principal of these is the danger of hemorrhage. At times the tonsil is so deeply situated that it is not possible to get the tonsillotome over it. In other cases the patients positively object to the cutting operation. There are two methods of using the galvano-cautery; one is by puncture, and the other by the snare. The former is much the slower. Not more than three punctures should be made at each sitting. The number of sittings required varies from five to ten. The latter method with the snare is much the quicker. The current should be used intermittingly, and contraction should only be made during the passage of the current. He did not recommend this as a universal operation. In the majority of cases the cutting operation is easier and better. It should be used where there is danger of hemorrhage, and he was almost disposed to say that the galvano-cautery should be used in all cases in adults.

DR. SAJOUS had tried galvano-puncture, but it is quite tedious. He had modified the method by making a puncture, and then introducing chromic acid. He thought that the use of the snare is an excellent method.

DR. A. W. MAC COY, of Philadelphia, in the treatment of these cases, made a distinction in the methods employed. In the glandular enlargements he uses puncture, while in the interstitial hypertrophies he does not, for in these cases one is apt to get cicatrices which give considerable trouble. He was not satisfied that the puncture is any better than chromic acid fused on a probe and passed into a crypt.

DR. ROBINSON had long held that we know of no simple operation in surgery. There is nothing that is so unpleasant to him as to have to remove large tonsils from a small child. Although, as a rule, the hemorrhage is readily controlled, yet he always undertakes the operation with a good deal of reluctance. He was disposed to think that galvano-cautery is one of the best methods. We can thus remove many tonsils that give us a good deal of apprehension.

DR. RICE said that very little can be accomplished with the cautery in the large white hypertrophies in children. The cutting operation is what must be done in these cases. In adults, however, galvano-cautery is the most useful measure.

DR. INGALLS had used the cautery, but a certain amount of soreness had always followed its use. In children, in order to avoid the pain and nervous shock attending the cutting operation, he is in the habit of etherizing the patient and removing the tonsil with the snare.

DR. ALLEN said that while it may be proper to do the cutting operation in certain cases of hypertrophied tonsils which have been selected with great care, he thought that we err in making broad statements in regard to this operation. He believed that the number of cases in which serious hemorrhage occurs, is much larger than is supposed. All the disastrous cases are not reported. He was not willing to perform the operation until he had studied the case very carefully. Other measures should be first used, and the knife resorted to at the last.

DR. DELAVAN thought that where the operation of tonsillotomy is done with proper care, with suitable styptics at hand, there is not much danger from hemorrhage. At first there is a gush of blood, but in a few seconds this stops. He had found it very difficult to get authentic reports of cases in which serious hemorrhage followed this operation.

DR. ASCH said, with reference to this question of hemorrhage, that some time ago one of his assistants removed a small section of the tonsil. The next day there was serious bleeding, and it was found necessary

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to keep up pressure on the tonsil for six hours before it was controlled. In another case that he knew of, it was found necessary to tie the common carotid artery.

DR. COHEN thought that a great deal of the trouble in tonsillotomy is due to the adhesion of the anterior fold of the palate to the tonsil. It has been his custom first to free the tonsil from the palate. In many cases the tonsil will then go down without any treatment whatever. He thought that the hemorrhage comes from the cutting of this fold, for as the vessels run in a vertical direction they are cut obliquely. He had never been able to use the cautery with the success of the reader of the paper. In his cases it has required from twenty to fifty sittings. One plan that he had followed is, after having penetrated the tonsil transversely, to try to cut his way out. Then to cut in the other way, and thus remove a portion of the tonsil. In this way, by making the application every day, or every other day, the tonsil is removed in the course of a month or six weeks.

DR. BEVERLY ROBINSON then presented a

NOTE ON A FREQUENT CAUSE OF NASAL HEMORRHAGE.

In his experience the ulcerations in atrophic rhinitis had been a most frequent cause of hemorrhage. He had found himself unable to detach the crusts from these ulcerations, either by the use of douches or sprays, so well as by the employment of ointments. In the course of two or three days the patient is able to blow out the crusts. He had found no ointment act so well in imbibing the crusts and producing changes in the ulcerations, as the ammoniated mercury ointment of the Pharmacopœia, of one-half or full strength, made up with vaseline. In applying plugs in the case of hemorrhage, he had found nothing so useful, especially in children, as Steele's flexible probe, recommended by Dr. J. Solis Cohen; he had found the so-called sheet sponge very useful as a plug. This may be cut in long strips, and pushed through the nose until the bleeding is controlled.

(To be concluded.)

CORRESPONDENCE.

A VISIT TO NAPLES.

The Public Hospital—Vesico-vaginal fistula—Symphyseotomy—Gynecological practice.

A correspondent writes us from Italy:

Circumstances have not been favorable for the investigation of medical matters here. I was very kindly received at Naples by Professor Ottavio Morisani, thanks to a letter of introduction from Philadelphia. I accompanied him once to the only public hospital of the city in which clinical instruction is given. It is an immense building, containing all departments, but I can write no particulars, as printed statistics were not furnished me as promised. The gynecological wards were contiguous on one side to the obstetrical, and on the other to the pathological department. The evils of this state of affairs are fully recognized; strenuous efforts are being made to effect a change, and hopes were expressed of early success.

I saw several cases of severe vesico-vaginal fistula which were being operated upon by Prof. Morisani, and judging from the appearance of the population of Naples, as seen in the streets, it is a lesion likely to be met with here very frequently. There were also some fine specimens of fibroids removed by enucleation. When laparotomy is resorted to for these, hysterectomy is performed, the pedicle being secured by clamp, and I could not hear of the *étage* suture and closure of the abdomen.

Prof. Morisani was kind enough to show me the knife which he uses in performing symphyseotomy, and to describe the operation. The knife is short, strong, sharply sickle-curved, with probe-point and very blunt back. An incision about two inches long is made over the symphysis, the joint recognized, and the knife then being passed behind the bone, it is divided from within outward. The pains being efficient, nothing more is done; if they are not so the forceps are applied. Prof. Morisani has performed this operation ten times with two deaths. In such an operation the facts of each case are to be considered, and without them a mere enumeration of the operations with the results remains of no value whatever. Nor can I give you the pelvic diameters under which he would resort to this procedure, as his papers upon the subject, although promised, have not came to hand.

Prof. Morisani was about leaving town to go to an operation in Calabria, and he turned me over to his assistants, who were conducting the out-door gynecological clinic. There was a great similarity in applications to the cases. The position of the patient was on the back, and a bivalve speculum, with lateral blades, was used. I could not learn that Emmett's operation for laceration of the cervix was ever performed in Naples. I saw some cases of so pronounced "ectropion," as to lead me to inquire about it. I had difficulty, and I think other than that appertaining to language, in making myself understood about the operation. R.

NEWS ITEMS.

CONNECTICUT MEDICAL SOCIETY.—The sixty-ninth annual convention of the Connecticut Medical Society was held at the County Court House, Hartford, on Wednesday, and Thursday, May 25th and 26th. The following officers were elected for the ensuing year:

President.—Dr. Francis Bacon, of New Haven.
Vice President.—Dr. George L. Porter, of Bridgeport.
Secretary.—Dr. S. B. St. John, of Hartford.
Treasurer.—Dr. E. P. Swasey, of New Britain.

LEPROSY AT ST. MARTINSVILLE, LA.—The *New Orleans Medical and Surgical Journal* for June, 1887, gives the following account of the results of an investigation of cases rumored to be leprosy, ordered by the State Board of Health of Louisiana:

After examining a number of persons who were more or less healthy, the physicians visited in a body the residences of eight sick persons about whom rumor murmured loudest. One of these was a gentleman suffering with a number of rodent ulcers in the face, associated with a large epithelioma on the neck, and a second case was an aggravated form of acne indurata.

Upon the remaining six cases opinions differed somewhat, but it was the unanimous verdict that three should

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be called *undoubted leprosy*, and a majority of the physicians considered the remaining three cases as *doubtful*.

Two other cases of leprosy (of the tubercular form), a son and a brother of two of these doubtful cases, are now under care at the Charity Hospital; thus making eight persons from St. Martinsville about whom suspicion is cast.

MUST AN OFFICER OBEY THE ORDERS OF THE SECRETARY OF WAR.—The case of Surgeon John S. Billings, which was a bone of contention between Secretary Endicott and Assistant Secretary Maynard while the latter was Second Controller, has been carried into the Court of Claims. This matter involves the power of the Secretary of War to issue an order requiring foreign travel except on purely military business. Dr. Billings was ordered to England in 1881 to attend the International Medical Convention in London. Before going to London Dr. Billings visited many of the important European cities in quest of information for the medical corps of the army. On his return home he claimed mileage for the entire distance travelled. The accounting officers disallowed the claim upon the ground that the Secretary of War had no authority to issue the order under which Dr. Billings travelled. The Secretary differed from the accounting officers, and asked that the case be reopened. The then Second Controller refused, and concluded his letter with a paragraph which gave some offence to Secretary Endicott, suggesting that if the Secretary was not sufficiently posted on the laws governing such cases it would be well for him to refer the matter to the courts for decision. The Secretary has concluded to follow this advice and has laid the papers in the case before the Court of Claims. There are several similar cases now on hand, and others are continually arising. The Secretary wishes the court to decide how far his authority over the movements of army officers extends.

MONEY VALUE OF LIFE.—The calculation of the money value of human life and the consideration of the money saved to a nation by sanitary science are a favorite line of study with Edwin Chadwick, the veteran English sanitarian. He is President of the Association of Public Sanitary Inspectors and, as such, recently read a paper on the financial value of sanitary science. He calculates upon evidence, which it is not necessary to reproduce, that the money charges upon the community arising from excessive sickness and mortality which is prevented by sound sanitation, amount to about 62,000,000 pounds.

He likens money expended for sanitary work to money voted by parliament for the maintenance of the army and navy and for the repair of defences, and says that we have an annual invasion of an enemy in the form of preventable disease, which every year fights and wins a battle against the community, and slays upward of 100,000 people beyond the present reduced death-rate, all of whom we know and have proved might have been saved by more efficient sanitation, and at a saving of double the annual cost of naval and military defences.

All this excessive loss of life and money is due to wastefulness and ignorance in legislation and administration. The only effective preventive will be the superior economy of tested and corrected sanitary science. Executive functions are generally confided to persons inadequately furnished with the qualifications required, and incapable to fill the offices. Adequate salaries with a system of promotion and retirements, as may be found in the army, will keep the hospitals empty. All these officers should be centralized under one Minister of Health.—*Sanitary News*, June 4, 1887.

A RUSSIAN MEDICAL COMMISSION has recently been sent from St. Petersburg to investigate a disease called "Pendel's tumor," which has for several years attacked Russian soldiers near the Caspian Sea. It is believed to be caused by microbes.

DR. MORITZ SCHUPPERT, a well known and highly honored physician of New Orleans, died in that city on May 2, 1887.

PROFESSOR HYRTL.—The illustrious Vienna anatomist, Hyrtl, who has for some time been suffering from cataract, has had the right eye operated on by Prof. Fuchs, apparently with great success. The left eye is also affected, and will shortly have to be operated on. Prof. Hyrtl is seventy-five years of age.

HONORS TO PROFESSOR ESMARCH.—Emperor William has conferred upon Prof. Esmarch, the great surgeon, the rank of nobility. Prof. Esmarch, who married Princess Henrietta, of Schleswig-Holstein, has been ignored by the royal family. It is surmised that he owes his ennoblement to his skill as a surgeon.

GERMAN ASSOCIATION OF PUBLIC HEALTH.—The German Association of Public Health will convene in Vienna September 26th to October 28th, to meet with the International Hygienic and Demographic Congress. The latter will meet in the University building. All governments are requested to send delegates.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 11, 1887.

VAN REYPEN, W. R., *Surgeon*.—Ordered, June 8, for examination preliminary to promotion as Medical Inspector.

ROBINSON, SOMERSET, *Medical Inspector*.—Ordered, June 20, before a Retiring Board convened at Mare Island, Cal.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERSSERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM JUNE 7 TO JUNE 13, 1887.

BAXTER, COL. J. H., *Chief Military Purveyor*.—To proceed to New York City for the purpose of inspecting the Medical Purveying Depot at that place.—*S. O. 133, A. O. G.*, June, 10, 1887.

Par. 15, S. O. 52, A. G. O., March 5, 1887, is so amended by Par. 9, S. O. 133, A. G. O., June 10, 1887, as to direct that Major CHARLES H. ALDEN, *Surgeon*, be relieved from duty in Department of Dakota, about June 20, 1887, and he is granted leave of absence from the date when so relieved to include August 27, 1887.

FRYER, MAJOR B. E., *Surgeon*.—Granted sick leave for one month.—*S. O. 28*, current series, Div. Pacific, amended by *S. O. 29*, Div. Pacific, June 2, 1887.

FRYER, MAJOR B. E, *Surgeon*.—Found incapacitated for active service by an Army Retiring Board, and granted leave of absence until further orders on account of disability.—*S. O. 133, A. G. O.*, June 10, 1887.

TREMAINE, MAJOR W. S., *Surgeon*.—Sick leave still further extended two months on account of sickness.—*S. O. 129, A. G. O.*, June 6, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL ARTICLES.

LUPUS AND THE BACILLUS TUBERCULOSIS.

BY JAMES E. REEVES, M.D.,
OF WHEELING, W. VA.

THE question concerning the identity of lupus and tuberculosis, since the discovery of Koch's tubercle bacillus, has received much attention, and, notwithstanding the studies of the pathological anatomy of lupus by Virchow, Wedel, Auspitz, Kaposi, and Neumann, in Germany, and by Malassez, Grancher, J. Renaut, Chandelux, Vidal, and Leloir, in France, it is still a matter of discussion and difference of opinion.

The observations of Koch, Doutrelepont, Neisser, Lassar, Leumiski, Lewin, and other distinguished pathologists, which led them to regard lupus as nothing more nor less than a local tuberculosis of the skin, have been ably discussed and opposed by several careful authorities: notably by Schwimmer, of Budapesth, and Kaposi, of Vienna, both of whom base their declarations, opposing the view establishing the identity of lupus and tuberculosis, mainly on clinical grounds.

At the recent Berlin Congress, Schwimmer said that "the affection known as tuberculosis of the skin is a very rare one, while lupus occurs frequently." He found among 2,400 patients, 90 cases of lupus, but only 5 cases of pronounced tuberculosis of the skin. The clinical diagnosis in the latter affection is based on the bacterial proofs. Among the 90 lupus patients, he found 68 per cent. constitutionally untainted; in 15 per cent. only he found a hereditary element. These facts, he held, speak against any etiological relation between the two diseases.

In the latest edition, 1886, of *Les Bacteries*, by Cornil and Babes, in which is presented a summary of all the knowledge on the subject, these authors say:

"We have searched with Lewin for the bacillus of tuberculosis in a dozen cases of lupus, in material taken during life, and although we have examined several sections of each fragment taken, we have found but a single time a bacillus. Malassez, on the other hand, has looked in vain in several cases of lupus for the bacillus of tuberculosis. Pfeiffer, Doutrelepont, and Demme have been more fortunate, and have found it constantly. . . . .

"When Friedländer, Köster, and others had described the tubercular follicle with its giant-cells, and when it was well demonstrated that lupus gave the type, the most perfect, the identity of tuberculosis was proclaimed —lupus being considered a local tuberculosis of the skin. Such has been for some time the fixed opinion of Besnier.

"Leloir, had in 1882[1] commenced the inoculation of lupus. In these experiments made with one of us, Leloir has obtained in half of the experiments[1] positive results, that is to say, a generalized tuberculosis in which the tubercles contained bacilli and gave rise to tuberculosis in successive inoculations. We have nevertheless remarked that the result was more slowly produced than when one employed the pulmonary tubercle as inoculating material.

"The most recent researches of Koch[2] demonstrate quite clearly the identity of tuberculosis and lupus. Koch has found four times the bacillus of tuberculosis in small numbers. In one case, for example, he was obliged to examine twenty-seven sections, and at another time forty-three sections, before finding a single one. But upon a series of successive sections, he found at one time one or two in each section. He has never seen more than a single bacillus in a giant-cell. Further, Koch has obtained in a pure state, cultures of the bacillus upon blood serum following the inoculation with material from hypertrophic lupus. One can then say, to-day, that tubercular lupus and lupus scléreux belong to tuberculosis."

By the light of the foregoing references, the following case, from the practice of Dr. J. F. Baldwin, of Columbus, Ohio, to whom I am greatly indebted for the report, may be of interest to those who have been engaged in the study and discussion of the question—Are lupus and tuberculosis identical? At least, the record is given for what it is worth.

January 9, 1887. Miss M., aged twenty-two. One sister died of consumption. Rest of family healthy. Has been failing rapidly for six months; cough, emaciation, anorexia, night sweats, etc. Examination of lungs by Dr. Baldwin revealed the usual evidences of advanced phthisis. Three years ago, she fell from a swing and caught her left index finger over a wire in such a way as (she says) to lacerate the flexor tendons. The skin was not broken. The finger became enlarged, but was not so painful as to keep her from working as a domestic. A few weeks ago, it became more tender and enlarged, and when Dr. Baldwin saw it, it presented a typical picture of specific dactylitis. On examination, he found it contained pus and was about ready to burst. He lanced it, and gave exit to quite an amount of sanious pus, though not as much as he had expected. The usual after-treatment directed. He saw her again on the 13th of January. A peculiar looking mass was presenting at the opening. The finger was nearly as large as before—about as it had been previously to the recent inflammation, she said—and hard: there were also two hard masses to be seen and felt along the flexor sheath in the palm of the hand. The protruding mass led him to fear sarcoma, from its appearance and feel, and he removed at once a considerable portion of it. To remove it all, would have required removal of the finger and a part of

[1] Société de Biologie Dec. 1882.

[1] Cornil and Leloir: Société de Biologie, Juin, 1883.

[2] Mittheilungen aus dem Kaiserlichen Gesundheitsamte von Dr. Struck, 2 vol., Berlin, 1884.

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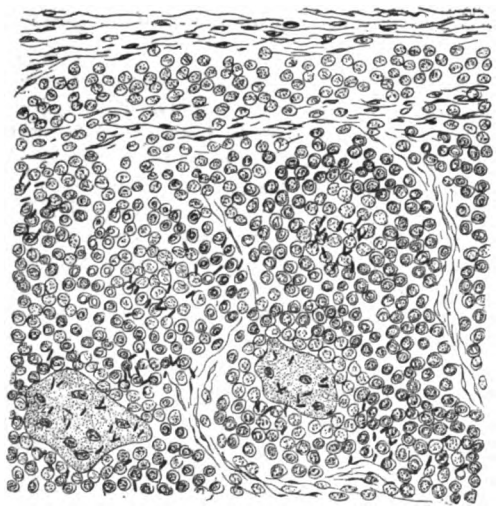
the hand, an operation which would not have been justifiable in her condition.

A portion of the removed mass was sent to me for microscopic examination. The wound did nicely, but the patient died of phthisis within the next three weeks.

The specimen sent me for microscopical study was passed through weak and absolute alcohols, cleared in spirits of turpentine, and then cast in paraffin. Twenty-eight sections were made, and stained so as to show bacilli if present, every one of which demonstrated typical giant-cells of tuberculosis, and countless numbers of tubercle-bacilli. Indeed, in all of my microscopical studies I have not found, even in lung-tissue, greater colonies of bacilli, neither sharper nor better definition, than in this specimen of lupus tissue. In proof that there was no mistake in the diagnosis—lupus—I have the honor to mention that sections were submitted to Prof. Wm. H. Welch, of Johns Hopkins University, who unhesitatingly pronounced the specimen lupus.

The accompanying illustration shows the microscopic appearance of the section.



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Prof. Welch's report is as follows:

"The microscopical appearances in the sections sent for examination are those of tuberculosis. The sections, which have been well prepared, are devoid of epithelium. The tissue is composed of typical miliary tubercles, of diffuse tuberculous tissue, and of a small amount of ordinary fibrillated connective tissue moderaely rich in leucocytes. The miliary tubercles present a cental part composed chiefly of large endothelioid cells, and a peripheral part in which small round cells predominate. In a few tubercles giant-cells are present. Central areas of coagulation-necrosis are to be found in only a small number of tubercles, and, when present, are of small size. The tubercles lie in diffuse tuberculous tissue composed mainly of endothelioid cells and of leucocytes.

In the sections stained for tubercle-bacilli, these bacilli are present in very large number, both within the tuberculous nodules and in the diffuse tuberculous tissue. The bacilli lie, for the most part, scattered irregularly throughout the tissue, but here and there they are accumulated in clumps. The bacilli are both intracellular and extracellular; in the former case being found within the giant-cells and the endothelioid cells."

Since the foregoing was written Prof. George H. Rohé, of Baltimore, has kindly sent me a specimen of *lupus vulgaris*—an entire ear. The neoplasmic cellular structure was found on microscopical examination to be precisely the same as in the specimen sent me by Dr. Baldwin; but showing fewer tubercle bacilli, which, possibly, may be accounted for by too long soaking and hardening of the specimen in strong alcohol, and the use of a stain not freshly made.

The following is the clinical history of the case furnished by Dr. Rohé:

"Mr. N., white, American, aged sixty-two, and by occupation a shoemaker, first noticed a brownish spot on his forehead about fourteen years ago. This spot increased slowly in size until it became as large as a twenty-five cent piece. It never ulcerated, and was never painful or itchy. About the same time he had a severe pulmonary affection which was attended by much cough, and later he had several slight hemorrhages, presumably from the lungs. About two years after the first appearance of the patch upon the forehead, a similar spot appeared upon the left cheek, which gradually extended until it reached downward below the jaw, forward to a line nearly perpendicular to the angle of the mouth, and upward and backward, invading the auricle, and extending for some distance (about two inches) into the hairy scalp. Under the left eye, and just within the malar prominence, a third spot appeared, which also eventually reached the size of a silver quarter.

"About the time the patch was first noticed on the left cheek the disease also invaded the right cheek, but did not become quite as extensive on this side of the face.

"The patient first consulted me in the spring of 1881. The disease presented the characteristic features of lupus vulgaris. The patient was shown at one of the medical societies in this city, and my diagnosis was concurred in by my friend Prof. I. E. Atkinson, who saw him on that occasion.

"No disease of the lungs could be detected when he first presented himself to me.

"The infiltrated patches on both cheeks, and the integument of the auricle became superficially ulcerated or eroded at times, but a simple dressing would rapidly promote cicatrization. There were never any deep ulcers.

"I scraped out the infiltrated patches on the cheeks with the curette on several occasions, and followed the scraping with nitric and chromic acids. The patch under the left eye was excised, and the edges united by fine silk sutures. This wound healed by first intention. The patient left the city about three years ago, and remained away for two years. Last year he returned and again presented himself. The lupus infiltration had generally returned, and the ear

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remained in an ulcerating condition most of the time. Last summer he was prostrated by an attack of croupous pneumonia, since which time he has been more or less of an invalid. No active interference with the lupus was undertaken until January 16, 1887, when the ear, which annoyed him very much on account of the constant suppuration, was amputated with the thermo cautery. The wound healed kindly, and is now entirely cicatrized. For a time, last summer, electrolysis was tried on some parts of the infiltration, but with no very marked success. To-day, previous to writing these notes, I visited Mr. N., and on making a physical examination of his chest, found a cavity in the left apex, and disseminated mucous râles throughout the right lung. He is at present suffering from sciatica, for which complaint he is being treated by his family physician."

ELECTRICITY IN GYNECOLOGICAL PRACTICE.

BY ANDREW GRAYDON, M.D.,

CLINICAL ASSISTANT AT THE JEFFERSON MEDICAL COLLEGE HOSPITAL, AND CHIEF OF GYNECOLOGICAL CLINIC AT ST. MARY'S HOSPITAL, PHILADELPHIA.

CASE I.—*January 22, 1884.* R. S., colored, aged thirty-nine; married seventeen years, one child fifteen years ago. Menses regular, scanty, and painful. Bowels constipated. Uterus found mobile, sharply retroflexed, pressing upon the rectum, and obstructing it. The treatment consisted of the faradic current twice or thrice weekly, of five minutes' duration each.

July 23. Uterus is normal in position and curvature. All painful menstruation has disappeared. Bowels regular. Patient discharged cured. The record of this case is abridged. It belongs to a series started at that time which was interrupted. I make a note of it because the result was a marked one. The negative electrode was placed in the uterus, the positive in the bladder. The strength of the current was determined by the patient's endurance—not strong enough to be painful.

CASE II.—*June 9, 1886.* L. B., saleswoman; single, aged twenty-one. Three years ago she fell astride of a fence, at which time she was seized with an acute pain in the right ovarian region. This compelled her to remain some days in bed. Since that time she has had a constant pain, aggravated by standing, walking, or exercise of any kind, and worse at her menstrual periods. The pain is of a sharp, lancinating character, starting from the right ovarian region as a centre. Complains also of dragging, pelvic soreness, and backache, with general nervous irritability.

Examination shows the right ovary prolapsed and very painful to the touch; also some cellulitic deposits. The patient has been treated since her fall in the routine manner, iodine and glycerine tampons, hot water injections, counter-irritation, knee-chest position, etc., with no alleviation of symptoms.

An application of the galvanic current was now made in the following manner: the negative electrode was placed in the vagina, in contact with the sensitive ovary and the deposits; the positive was held in the right hand. The strength of the current was four milliampères. Length of treatment fifteen minutes.

17th. Treatment repeated.

21st. Treatment continued; five milliampères. Patient not so sore.

Same treatment repeated on June 24th, July 8th, 12th, 19th, and 21st.

August 4. Treatment ten minutes, ten to eighteen milliampères. Up to this date the improvement has been steady and unbroken. The ovary remains prolapsed, resisting any attempts at reposition, is entirely devoid of any sensitiveness, and the evidences of preëxisting cellulitis are diminished. With the local improvement the systemic disturbances also showed the good effect of the current. With the exception of a laxative at one time and a diuretic mixture at another, galvanism was the only treatment she received. She was discharged to-day, with the direction to report to us on the first evidence of any trouble.

March 1, 1887. Saw the patient to-day. She states that she has been free from all pain in the pelvis since she last saw us; that her menstrual periods are regular and painless, and that she has been able to attend to her work in the store.

CASE III—*June 15, 1886.* L. L., aged twenty-four; married five years, sterile; suffers with severe dysmenorrhœa. She applied, August, 1884, to the hospital for relief; received no permanent benefit, and was transferred on this date to me for electrical treatment. The uterus is sharply anteflexed. She was treated with the faradic current, taking patient's feelings as the guide to the strength, each application averaging fifteen minutes, twice and thrice weekly, beginning four days after each menstrual epoch. The negative electrode was placed in the uterus, and the positive in the rectum.

July 10. The first menstrual period since beginning treatment has just passed with less pain.

August 17. This menstrual flow was increased in quantity. Slight pain. This increase in discharge was noticed in all our cases in which we used faradism.

September 18. Menstrual period similar to last one.

October 20. Menses from 10th to 17th. No pain. The curve of the canal was taken again to-day, and was markedly diminished.

November 20. Menses on from 12th to 14th. No pain whatever.

December 10. Patient discharged cured. Directed to report in a month.

February 2, 1887. Examination shows uterus in normal position and with normal curvature. Menses continued regular and painless.

CASE IV. — *October 2, 1886.* A. A., aged twenty-six, married three years, sterile. Puberty at fifteen; menstruation irregular for past two years. Bowels constipated. Uterus strongly retroflexed. Treatment same as Case I., twice and thrice weekly.

March 30, 1887. Condition greatly improved. Menses regular and painless, being before treatment very painful. The retroflexion, though not so sharp, remains.

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CASE V.—*June 12, 1886.* A. W., single, aged twenty-five. Complains of persistent backache, with dragging pelvic pains. Has also a great sensitiveness of the external genitalia and vaginal walls. A condition of chronic pelvic cellulitis was found upon examination, the uterus being bound down.

The galvanic current was given the patient twice a week, changing the position of the electrodes so that the current thoroughly penetrated all the cicatricial bands, and came in contact with the sensitive parts. She was treated from June 12th to July 24th, seven applications in all, with positive relief to all her symptoms, and was then transferred to another department.

CASE VI.—*June 23, 1886.* M. A., colored, aged twenty-six. Married seven years. Sterile. Puberty at seventeen; menstruation normal up to marriage as to time and duration, but always very painful before and during the flow. Has also severe pain in the sacral and inguinal regions. Bowels regular. General health fair. Uterus sharply anteflexed.

The curvature admitted the sound on the finger with difficulty, a condition of stenosis existing also. Treatment of this case was by the faradic current after manner of Case III.

October 27. In the beginning we could scarcely introduce a flexible electrode, and that only after straightening the uterus with a tenaculum. The improvement kept step with the treatment. At this date the curve is greatly diminished.

The dysmenorrhœa has disappeared, and with it all backache and pelvic pain.

December 27. She complains of the reappearance of the pelvic soreness. Galvanic current was applied, ten milliampères, fifteen minutes.

March 30, 1887. Galvanic current continued to the present time. Pain disappeared. Uterus normal in curvature and position. Menses regular and painless.

CASE VII.—*June 30, 1886.* L. F., aged forty. Married twenty-two years. One child twenty-one years ago. Never pregnant since. Puberty at fourteen, regular as to time and duration, but has severe pain with each period. Gives a history of acute pelvic cellulitis four years ago. Has had metrorrhagia at different times since. Has been treated for the past four years by the routine treatment, iodine, glycerine tampons, boracic acid, etc., with the varying results obtainable in this class of ailments. She suffers with the constant aches and dragging pelvic pains that make life to a woman, thus afflicted, almost unbearable.

Examination gives a condition of chronic cellulitis. Uterus immovable. Nodules are distinctly felt behind and on the right side of the cervix, very sensitive to the touch. Treatment, galvanic current; negative electrode in the vagina, resting against these tender lumps, and the positive on the sacrum. Strength of current fifteen milliampères, thrice weekly.

July 15. Pelvic pains have disappeared. Less tenderness upon examination.

December 11. Attention was to-day called to some hemorrhage the patient had eighteen days after her last menstrual period. A sore spot on the posterior vaginal wall was found, caused evidently by the current having been applied stronger than fifteen milliampères. This healed readily under the use of an iodoform ointment. The uterus shows more mobility, and the cellulitic deposits considerable diminution.

March 31, 1887. The treatment has continued to the present time, one to three times a week. The uterus is freely movable, the evidences of pelvic cellulitis have entirely disappeared. There is no sensitiveness to the touch. She says she has "no backaches or any pain." Menses are regular, lasting three days, without pain. Discharged cured.

CASE VIII.—*October 26, 1886.* A. W., aged forty-five. Married, had one child and three miscarriages; last miscarriage was twelve years ago, from which time she dates her trouble. Complains of constant diffuse pelvic pain, sacral and crural neuralgia of the right side. Uterus was found immovably fixed, with hard, tender nodules to the right side of the cervix. She was treated with the galvanic current.

November 2. The patient was treated twice, and to-day she expressed herself as feeling "a great deal better." She did not visit us again.

CASE IX.—*November 4, 1886.* Mrs. B., aged forty-seven. Married twenty-six years; five children and two miscarriages. Was operated upon for lacerated perineum, December, 1885, which was followed by an attack of pelvic inflammation. Puberty at thirteen, and after three years her menses became regular as to intervals, but each period lasted a week, was profuse in flow, and preceded by severe pain. She was always compelled to remain in bed one week at these times. This condition has been growing worse since the operation.

The uterus is retroflexed, prolapsed, and adherent, measures three and a half inches; vaginal vault rigid and tense; retro-uterine ligaments are contracted. The sensitiveness of the patient is so great as to make the examination almost more than she can endure. She says the pain in her back and limbs prevent her from standing any length of time. Cannot do her own work; is a burden to herself. She was put upon the galvanic treatment in the usual manner and strength. After the third treatment (November 15, 1886) she reports improvement; less pain, feels stronger.

March 31, 1887. Her visits averaged five monthly, fifteen minutes each, fifteen milliampères. The improvement has been steady, and at this date she "feels better than she ever did in her life." Menses are normal in character. Is able to be about on her feet for a longer time with comfort. Is gaining in weight. Tenderness in the vagina less marked. Uterus more mobile, can be moved about with less pain to the patient. Treatment continues.

CASE X.—*December 14, 1886.* E. J. J., aged twenty-eight, colored. Married seven years; one child six years ago; instrumental delivery, dead child. This patient presented herself with a large subperitoneal fibroid filling the posterior *cul de sac*, and extending to the right. The examination was attended with very great pain, the nodules being

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very sensitive. She scarcely tolerated the introduction of the finger. Electrolysis was proposed, but the patient objected, and it was concluded to put her upon the usual galvanic treatment, with the view of reducing the pain, and possibly the size of the tumor.

March 31, 1887. She was given two treatments a week at first, fifteen milliampères, fifteen minutes. After the sixth application the soreness had entirely disappeared. For the past month she has received three treatments weekly. The improvement as to the pain and discomfort continued permanent, but the size of the tumor has undergone no appreciable decrease.

CASE XI.—*December 22, 1886.* M. O., aged twenty-eight. Married six years. One child and one miscarriage. Miscarriage in second month of marriage. Never been well since birth of child three years ago. Is not able to be about her house work. Has "constant pain and weakness in her left side," with feeling of heaviness, which condition is aggravated by standing, walking, or exercise of any kind.

Puberty at eleven. Menses are irregular in time, and the duration of each period is six days, with pain in first two days. Has lost forty pounds since marriage.

Uterus is retroflexed, prolapsed, measures three and a half inches. Os and canal patulous. Some cellulitic deposits are found in the posterior cul-de-sac.

March 31, 1887. She was, at first, treated with the faradic current, with the hope of rectifying the displacement. After seven treatments, averaging twice a week, with relief to the painful menstruation as a result, but no effect upon the flexion, galvanism was substituted, on account of the cellulitic features of the case.

At this date she says she has gained twelve pounds since beginning the treatment. Is better in every respect. Menses are regular and painless. The deposits have diminished in size and sensitiveness. This patient comes a distance of seventy miles three times a week.

I have submitted these cases, thinking they might be of interest to the profession, as I am confident that the treatment will prove beneficial if tried. They have been collected hastily from my case-book, with no attempt at elaboration.

The method of treatment is detailed under the individual cases. In sharp flexions we begin with a flexible electrode insulated to within two inches of the tip, and as soon as the curve of the uterus will allow, this is replaced by a stiff one, similar to a uterine sound, with the same insulation as the flexible one. This we are in the habit of connecting with the negative pole of the faradic machine. Although the choice of poles is *here* a matter of little importance, in galvanism it is. In the case of a retroflexion, the positive electrode is introduced into the bladder. If it be an anteflexion, a flexible twisted wire electrode is placed in the rectum. This electrode is insulated up to the point, which is a movable olive, allowing graded sizes to be used. This form of electrode is also found of service in treating constipation, etc., as it will follow the convolution of the bowels with ease and little pain.

The electrodes should always be placed in position before turning on the current. In the beginning a painless current should be used, slowly increasing to the point of the patient's comfortable endurance. I have found a hydro-rheostat necessary to the proper gradation of the current, since the weakest current I could get from an ordinary one cell machine always caused pain when applied through these organs. And if the patient is subjected to an ordeal of suffering at each treatment, her confidence and presence are both lost. Length of treatment is with us fifteen minutes, double that time three times a week will give better results.

In the use of the galvanic current there are some points of importance.

1. A milliampèremeter should be always used. Patients cannot be treated scientifically without it. With it we can always give them the same quantity at each treatment. This is impossible if we depend on the number of cells as a guide, since the internal and external resistance vary. I have frequently found that it required twice as many cells to give one day the current I had received from half the number the day before, this fact depending upon both battery and patient.

2. The current should never cause pain, nothing is gained by increasing it to that degree. In Case II. I used four milliampères, as a rule, once five, and at another time eighteen to twenty milliampères. In all the others I averaged fifteen milliampères. In three instances I cauterized the vaginal surface when I exceeded that strength. A rheostat will be valuable in enabling the current to be gradually increased at the beginning and diminished at the end of each treatment.

3. Position of the electrodes. As the result of cauterization by the negative pole is that of an alkaline caustic, soft and more readily absorbed, while the positive is that of an acid, more dense and firm, the negative should be placed in the vagina in contact with the part to be acted upon. We thus obtain the sedative and electrolytic effect, at these points, upon the cellulitic products.

4. Electrodes. For external position I use a plate of copper, five by six inches, covered with Canton flannel and backed with pure rubber. Internally, a straight stiff rod, terminating in a movable olive, of which we have different sizes. This is insulated with rubber to the olive, with walnut handles on the other end. Covering the olive with absorbent cotton, or a disk of Canton flannel, and wetting it in warm water, it is ready for use. The placing of these does not require any exposure of the patient.

5. The electrodes should always be placed in position before connecting them with the battery, then the current turned off gradually by means of the rheostat before removing them. Neglect of this will cause pain to the patient as the electrode passes over the perineum. A bifurcated conducting cord should be used, so that when the current is increased it will not be necessary to break the current, and thus we avoid giving any shock to the patient.

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The conclusion that I draw from my work is, that in electricity we have a valuable agent. In uterine displacements, ill developed ovaries and uterus with amenorrhœa, and in subinvolution the faradic current may be used with advantage. But it is the galvanic that I have found the more valuable. All who have had anything to do with gynecological work know how stubborn many conditions are, and how slow to respond to remedial measures. Many of these cause the patient constant pain, "misery" as they term it. Chronic ovaritis, pachysalpingitis, chronic peritonitis, cellulitis, and lymphadenitis, also pelvic neuralgia, try the skill and patience of the physician. After all the routine treatment is exhausted the condition remains very much unchanged.

Now in electricity we have an agent that promotes absorption of the adventitious tissue, allays pain and irritation, and sets up reparative action. It is within the reach of all physicians, requires no very extended knowledge to be able to use it with safety and advantage; and, although it requires time in its application, the benefits it confers upon a class of patients, in which other treatment is either useless or harmful, amply repay for any outlay of time and the little expense attending it.

I am indebted to my friend, Dr. William E. Ashton, for his kind assistance in this work.

1437 NORTH TWELFTH STREET.

THE PENNSYLVANIA HOSPITAL OPERATING-TABLE AND WARD DRESSING-CARRIAGE.

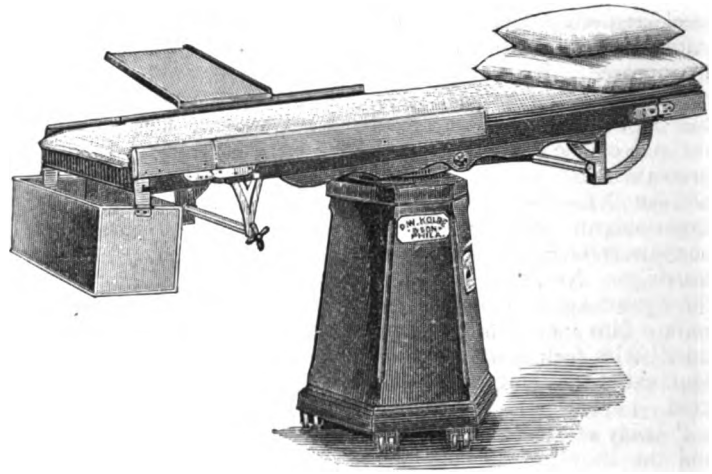
BY THOMAS S. K. MORTON, M.D.,

LATE RESIDENT SURGEON, PENNSYLVANIA AND ORTHOPÆDIC HOSPITALS, MEMBER COUNTY MEDICAL AND PATHOLOGICAL SOCIETIES OF PHILADELPHIA.

IN the evolution of such a principle as that known as the Listerian, many more or less new means must be devised for the practical, or perhaps luxurious, carrying out of its various modes of application. Two such I wish to describe, namely, an operating bed or table, with suitable draining apparatus; and a ward dressing-carriage modified to an antiseptic end. Both have been in constant and satisfactory use in the Pennsylvania Hospital since my introduction of them there; also, they are now in service elsewhere.

The operating-table is constructed of suitable hard wood, and revolves upon a heavy pedestal, as is usual with such tables, but differs from them in being placed upon the support at a considerable angle (Fig. 1). The measurements are as follows: length, 6½ feet; breadth, 25 inches; head 38 inches, centre 36 inches, and foot 33 inches from the floor. Beginning at the foot, and running 40 inches toward the head is a wooden rail 2 inches high, while at the end of the table is swung a zinc tank of from 5 to 10 gallons capacity. The great secret of the table's proper working is the mattress. This is made of felt one inch thick, such as steam-pipes are wrapped with, and is exceedingly cheap. While presenting a soft, comfortable surface, pressure will not make hollows in it.

FIG. 1.



This mattress is sewn into a rubber bag, and after being placed upon the table, a large rubber sheet covers both it and the table. The ends of this rubber cover are tucked into the pan, where the side rails must direct all fluids falling upon it.

If the part to be operated upon is below the chest, the patient's head occupies the highest portion of the table; but if the operation be above that point, his head is placed at the foot of the table, and upon a small pillow, so that the fluids will run around it, and into the pan. In operations upon the arm or axilla, a special attachment is put on by means of an angled iron and slot in the table to receive it (see Fig. 1). This attachment consists of a board, also upon a decided incline and with side rails, so that when a smaller rubber cover is thrown over it fluids will be conveyed upon the main sheet, alongside the patient's head (which is at the foot of the table), and so into the pan.

I have also had constructed, upon practically the same model, an iron bed for use in the receiving wards of the hospital, which is found of great use.

With these beds the most perfect drainage is secured, and the usual great inconveniences of free irrigation, to both surgeon and patient, are entirely overcome.

The ward dressing-carriage is made upon the general model of the original ward carriage introduced first by my father, many years ago, in the Pennsylvania Hospital. The modifications are two or more superimposed tanks instead of one; a basin and spigot at one end; a dressing preparing-tray, and suitable receptacles for the modern dressing as used in this hospital.

As now used (Fig. 2), the carriage has two tanks —a copper one beneath for either distilled or carbolized water, and an upper stone jar or tank for $HgCl_2$-solution. The upper tank is enclosed with wood, and has a copper lid.

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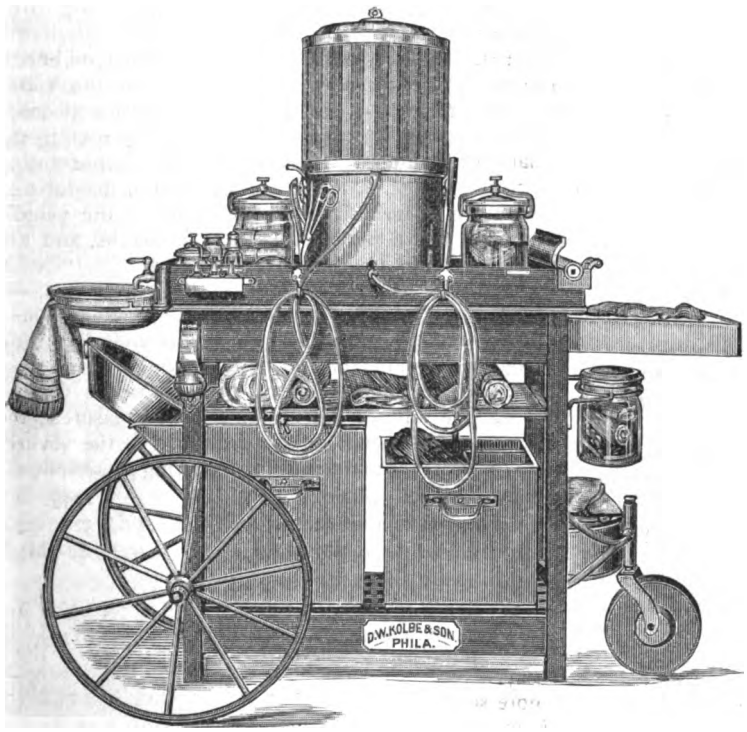
Both tanks have hose attachments for wound washing, while the lower one has also an attachment to a spigot which overhangs a pivoted basin at one end of the carriage for hand washing. This basin is pivoted a little in advance of its centre, in an iron ring, and empties by tipping its contents into the common waste-bucket or tank below.

In front of the carriage a long, zinc-covered tray pulls out, on which dressings are prepared. Upon the carriage are kept, in jars, dressings, cotton, sponges, towels, gauze bandages, protective, and drain tubes; also minor operating instruments in a zinc or glass tray, constantly immersed in a three per cent. carbolized glycerine solution, and are, in addition, boiled in water every night. Bandage and plaster scissors, a palette-knife, common cotton bandages, towels, and lint, a large sugar-duster for iodoform, bottles for iodine, turpentine, alcohol, fluid soap, soap liniment, and a jar of boracic acid ointment, together with basins, rubber cloth, wax paper, soap dish, nail brush, adhesive plaster, and lamp, about complete the dressing-carriage outfit. All portions of the carriage are simple of construction, and are daily taken apart and rigorously cleansed.

The table and carriage are both manufactured by D. W. Kolbe & Son, of this city.

FIG. 2.



All instruments kept in the receiving wards, or upon the ward carriages, of this institution I have had put into carbolized glycerine, and kept as indicated above; and now, thanks to the suggestion of my former colleague, Dr. E. G. Rhoads, even the hypodermatic needles of the entire house are thus kept.

A final word in regard to the irrigation arrangements which I have introduced in our main operating-room may not be out of place. Until arrangements can be made to secure an unlimited supply of distilled water, we are using—when it is clear—simple running water. The irrigators are suspended in a rack close to a hot water faucet, from which they can be rapidly filled; they then receive their quota of antiseptic. These irrigators are common one-gallon percolator jars, to one end of which are attached four feet of rubber tubing and a hard-rubber stopcock, while to the other, or open, end an attachment is secured by which they may be hung conveniently upon an iron bar or tube which runs across the centre of the operating-room, seven and a half feet from the floor, and has hooks a foot apart upon its under surface.

MEDICAL PROGRESS.

MANIPULATION OF THE KIDNEY.—DR. W. H. BENNETT, of London, reports in the *Lancet* of May 21, 1887, his treatment of a case of probably impacted calculus. He says, "Seeing the ease with which the kidney could be felt, partly by reason of the thinness of the patient, I determined, as drugs afforded no relief, to insure complete relaxation of the abdominal parietes by the administration of an anæsthetic, and then manipulate the kidney as freely as possible, without previously exposing it by incision, with a view, if the case were one of calculus, to disturbing the stone, and, if it were not too large, perhaps bringing about its passage down the ureter, or, in the event of the symptoms being 'hysterical,' with the hope of producing a mental effect upon the patient sufficient to relieve her distress. She, however, declined the anæsthetic, and I was compelled to attempt the manipulation without its aid. The patient having been laid on her back upon a couch, the fingers of my left hand were dipped deeply into the abdominal wall over the kidney, the right hand being pressed forward into the loin. By a little management, the muscles being quite flaccid from the patient having become faint, the kidney could be felt quite easily between the two hands, and was kneaded as thoroughly as the circumstances allowed. The patient, although much discontented with the aching and tenderness which the operation seemed to have caused, was well enough to walk away almost directly afterward.

"Two days later she reappeared at the hospital in a more grateful mood, saying that, having suffered much discomfort for the rest of the day after the manipulation, she was seized as she was going to bed with a most acute pain in the affected loin and side of the abdomen. The pain lasted for about half an hour, during which she vomited twice. All at once an uncontrollable de-

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sire to micturate occurred, and the pain immediately ceased. No further pain followed, and there can be little doubt that a small calculus had made its way down the ureter into the bladder, although no evidence of its having passed 'per urethram' was forthcoming. Moreover, it is quite possible that the manipulation had moved the stone from its resting-place in the kidney, and thus brought about its expulsion."

He ventures to suggest that manipulation without incision is a proceeding worthy of trial as a treatment which may possibly prove of utility in certain cases of renal calculus, not too far advanced, as a means of changing the position of the stone, and perhaps effecting its expulsion—a possibility, to his mind, sufficiently strong to commend the process to the attention of physicians as an adjunct to the medical treatment of renal calculus.

BERGEON'S TREATMENT OF PHTHISIS.—DR. HERON, of London, reports his experience as follows in the *British Medical Journal* of May 21, 1887: My study of Bergeon's treatment was commenced in October of last year, and was chiefly conducted in my wards in the City of London Hospital for Chest Diseases. The cases I selected were certainly tubercular, as was shown by the physical signs of lung-disease, and the presence in the sputum of each patient of the tubercle bacillus. As regards the kind of case selected, it was of the type in which fever was not high, the urine free from albumen, and expectoration was moderately copious.

In not one single instance in which this treatment was carried out under my supervision was there the slightest evidence of any permanent good result having been achieved. Beyond a diminution of the amount of expectoration, an occasional lessening of the cough, and an unimportant lowering of the temperature, there was no evidence of any benefit having been derived from Bergeon's treatment in these cases of mine. As those results can be secured by means less unpleasant to the patient than Bergeon's method, I have ceased to employ it in the treatment of tubercular disease of the lungs.

THE TREATMENT OF PULMONARY CONSUMPTION BY HYPODERMATIC INJECTIONS OF SUBSTANCES DISSOLVED IN VASELINE.—Our readers will remember that in THE MEDICAL NEWS of February 26, 1887, p. 240, and April 23, 1887, p. 466, we gave a series of formulæ for the hypodermatic use of substances dissolved in vaseline, as proposed by MEUNIER, of Lyons. We add the following formulæ, which Meunier considers especially adapted to the treatment of pulmonary phthisis, and which he publishes in an article in the *Revue Générale de Clinique et de Thérapeutique* for May 19, 1887:

1.—Eucalyptol	1 part.
Liquid pure vaseline	4 parts.

This solution affects the bacilli but little, but lessens fever and secretion, especially in bronchorrhœa; in small doses it is a tonic.

Dosage forty minims twice daily.

2.—Phenol (carbolic acid) pure	1 part.
Eucalyptol	1 "
Liquid pure vaseline	18 parts.

Eucalyptol is employed to aid in dissolving the carbolic acid, which is sparingly soluble in vaseline.

This solution diminishes the number of bacilli, and replaces with advantage the preparations of creasote which disturb the stomach; it lessens fever.

Dosage, one injection daily of eighty minims, or two of forty minims.

3.—Iodine	1 part.
Liquid pure vaseline	100 parts.

Beneficial in scrofula, tuberculosis, asthma, and tertiary syphilis.

Dosage, forty minims night and morning, daily.

4.—Eucalyptol	20 parts.
Iodoform	1 part.
Liquid pure vaseline	80 parts.

In infectious diseases, phthisis pulmonalis, and chronic bronchitis.

Dosage, forty minims twice daily.

These solutions may be used in phthisis in rotation in periods of five days each. The reason of rotation is to avoid the cumulative effect of eucalyptol, which is manifested by depression and loss of appetite of the patient. These solutions influence, to some extent, the life of the bacilli.

COFFEE AND IODOFORM.—DR. NEALE writes as follows of his experience with this combination in the *British Medical Journal* of May 21, 1887: Valuable as coffee, when freshly ground, has proved in disguising the odor of iodoform, it has the following disadvantages: 1. It is only for a limited period that its effects last; and, 2, it is very difficult to grind the coffee so fine as to prevent the grains irritating a sore part; and especially is this felt if the iodoform be used in the form of an ointment. I have found that by macerating the coffee in hot lard or vaseline, all the deodorizing powers are absorbed by and retained in the vehicle employed, and a perfectly smooth, inodorous, and unirritating ointment can be prepared.

THE TREATMENT OF DIARRHŒA IN INFANTS.—CONBY, of Paris, describes the symptomatology and etiology of this affection, stating that, in Paris, the mortality from this disease during the summer is 600 per month. He advises the use of dietetic measures; the subnitrate of bismuth, and laudanum. In the severer cases the writer recommends the following prescriptions:

1.—Aquæ destillat.	ʒ 12½.
Syrup of quince	ʒ 5.
Acid hydrochloric. dil.	♏ 8.—M.

Sig. Teaspoonful every two hours.

2.—Sacch. pulver.	ʒ 2½.
Naphthalin	gr. 15.
Iodoform.	gr. 3.
Ol. bergamot.	gtt. 2.—M.

Ft. in chart. 20 in num.

Sig. One powder every hour, in milk.

3.—Naphthalin.	gr. 8.
Spirit. vini Gallici	ʒ 2½.
Syrup. altheæ	ʒ 12½.—M.

Sig. To be taken during twenty-four hours, in teaspoonful or coffee spoonful doses.—*L'Abeille Médicale*, May 16, 1887.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JUNE 25, 1887.

INTRALARYNGEAL PAPILLOMA AND EPITHELIOMA.

DISCRIMINATION between intralaryngeal epithelioma and sessile papilloma is not difficult in the majority of instances; the clinical history of the case, the age of the patient, the location and physical appearances of the neoplasm being sufficiently characteristic to establish the diagnosis. During a limited period in the growth and progress of some instances of epithelioma in the larynx, however, considerable difficulty may be experienced in its differentiation from sessile papilloma; the uncertainty being resolvable neither by laryngoscopic inspection of the undisturbed neoplasm, nor by microscopic inspection of exsected fragments.

Papilloma is often presumptively an outgrowth from fibrous hyperplasia in repair of erosions or deeper losses of substance in chronic inflammatory processes in the mucous membrane, or in long-continued inflammation without losses of substance. It remains an outgrowth, and does not infiltrate the submucous connective tissue. It increases at its periphery by the division of the papillæ, and at the base by general enlargement only, so that the circumference at the base is smaller than in some parts of the free portion, sometimes smaller than in any other portion of the growth. In many instances several growths are developed singly, in close proximity, and, contracting adhesions, subsequently augment in bulk as a single mass. These are the growths that resemble some examples of epithelioma at a certain stage of its progress. Hence, with a clinical history of hoarseness and dyspnœa following a laryngitis, a mass of sessile warty excrescence in the larynx, bulkier in some portion of its body than at its base, with or without congestion or inflammatory tumefaction of the surrounding mucous membrane, may well be regarded as papilloma in the absence of histological evidence to the contrary.

Epithelioma is not, as a rule, directly referable to general laryngitis as a cause of attendant hoarseness and dyspnœa. It does not undergo demarcation at its base. It does not remain an outgrowth of the mucous membrane, even though it originate therein, but it infiltrates the submucous connective tissue, so that any surrounding congested or inflamed mucous membrane presents a deformed semiglobose, ovoidal, or bossellated outline in marked contrast to the more diffuse inflammatory tumefaction adjoining the benign growth. In the earlier stages of epithelioma this deformity of structure precedes the distinctive appearance of a tumor; but, as a rule, laryngoscopic inspection is not made until after this period has passed, and so an important discriminating feature escapes recognition. Epithelioma of the larynx, too, and especially when it occupies a vocal band, sometimes becomes overlaid with papillomatous outgrowths; perhaps due here, likewise, to inflammation of the mucous membrane from functional irritation in talking and in coughing. In this stage of its progress it is indeed difficult to differentiate from pure papilloma, especially when seen laryngoscopically for the first time in an apparently healthy subject. It is in this stage, too, that absolute reliance cannot be placed upon the negative results of microscopic examination of fragments removed for the purpose; for the papillomatous outgrowths alone may be detachable by access of instruments through the mouth; a circumstance under which absence of evidence of histologic malignity is no criterion as to the real nature of the main portion of the neoplasm. Furthermore, in a most instructive instance in Semon's practice, recently announced in the *Brit. Med. Journ.* of June 4, 1887, p. 1240, a warty growth removed from a vocal band showed typical epithelioma in close juxtaposition to inflammatory tissue in one and the same section, as prepared for microscopy. Thus an apparently benign growth may have an actual malign integrant that would escape detection, not only under ordinary inspection, but even under ordinary microscopic interrogation. This fact raises the question whether the benign growths hitherto supposed to have undergone transformation into malign ones without extraneous influence, may not have been histologically malignant from the start. It likewise tends to confirm the opinion of most laryngologists, that an underlying tendency to malignancy exists, if not absolute malignancy, even in those occasional instances in which, after subjection to repeated or long-continued irritation, epithelioma has been eventually demonstrated in growths to all appearance originally benign. Such irritation has been attributed in some

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instances to functional disturbance in coughing and in talking; and in others to operative interference, whether in repeated cauterizations with a view to destruction, or in instrumental procedures for purposes of evulsion. The more skilled the laryngoscopic operator, the less likely is subjection of a neoplasm, or its surrounding tissue, to useless or pernicious irritation; and the better his judgment, the more likely will be early cessation of the inefficacious irritative procedure and resort to a more radical one.

The treatment of these doubtful cases will cast the utmost responsibility upon the medical attendant; a responsibility in which his judgment is at stake equally with his skill. Time is valuable; extremely so in malignant cases; and, for the time being, hardly less so in cases clinically malign by their location, although benign histologically. To subject a doubtful case to extreme measures may unnecessarily deprive the patient of an important organ, or even imperil his life. To delay such measures too long may sacrifice his only chance for recovery.

We would say that due intralaryngeal interference under the most promising conditions having proved inadequate to the eradication of a suspicious morbid growth, whether from position, from bulk, or from recurrence, the proper plan would be to divide the anterior wall of the larynx so that, if at all practicable, the morbid mass may be thoroughly eradicated by direct access; the decision having been previously made, whether, in case the proposed eradication should be found impracticable, radical laryngectomic procedures, partial, complete, or complex, should immediately follow, or whether subsequent treatment should remain confined to measures merely palliative and symptomatic. In coming to this decision due prominence must be given to the risk of death from laryngectomy or its immediate consequences; and to the likelihood of recurrence after a successful operation; for the instances of epithelioma of the larynx in which life has been prolonged by laryngectomy beyond its probable continuance under the undisturbed progress of the disease, are still far less numerous than those in which the remnant of life has been shortened.

Intralaryngeal epithelioma remains confined to the inner portion of the tube for a long while before extending beyond its borders or through its walls; and consequently, if the general health of the patient does not suffer in the interval, a serious operation like that of excision of the larynx, unilateral or bilateral as may be, may weli await positive demonstration that the deeper seated portions of a doubtful growth are more malignant in character than any inflammatory growths or outgrowths which may have been removed. Even then, too, it may be possible to cut away merely the respiratory walls infiltrated with the neoplasm and thus save the wings of the thyroid cartilage with their important attachments of the muscles of deglutition; an operation involving far less immediate risk to life than excision of the whole of the laryngeal skeleton; and which, theoretically at least, should be equally efficacious in ridding a patient of disease limited to the interior of his larynx.

In cases of undoubted papilloma so extensive or so located as to preclude eradication through the mouth, or exhibiting uncontrollable recurrence, it is far better to divide the larynx externally and to operate efficiently in the direct manner, than to continue to tear away little fragments at a time, indefinitely to little purpose.

THE TREATMENT OF TUBERCULOSIS OF THE JOINTS BY ACID CALCIUM PHOSPHATE.

AT a recent meeting of the Society of Physicians of Vienna, KOLISCHER, of Vienna, exhibited four cases of tubercular joints, three of which had recovered, while the fourth was in process of recovery, under a method of treatment which he had recently introduced, which aimed at the destruction of tubercle bacilli and the induction of calcification in tuberculous matter, in imitation of the process often observed in healed lung cavities. It is supposed to act by producing a mild grade of inflammation and cicatrization which destroys tuberculous matter. The method consisted in the injection into the diseased joints of a solution of acid calcium phosphate, whose strength and dosage are not reported.

In one class of cases a prompt inflammatory reaction followed the injection, lasting from four to seven days, and was succeeded by a period of calcification which continued from two to four weeks, ending in absorption; the final result was a restoration of the contour of the joint. In the other class of cases—those in which cheesy degeneration was rapidly progressing—injections into the joints were followed in about a week by the breaking down of tubercle and the rupture and discharge of the abscess; and healing by granulation resulted promptly. Cicatrization of tuberculous ulcers and separation of necrosed bone were readily caused by the solution. Tuberculous fistulæ and cavities were tamponed by gauze saturated with the solution.

The cures exhibited were two cases of acute tuberculosis of the elbow-joint in children; the results were normal contour, good motion, absence of all general symptoms. Also a case of knee-joint tuberculosis, under treatment six weeks, whose gait and symptoms were greatly improved. The fourth case was a man, whose carpal joint had been acutely tuberculous; result normal contour, the joint capsule filled with calcified material; slight movements of the fingers possible.

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ALBERT, MAYDL, and others of the surgical staff of the Vienna Krankenhaus, fully endorsed the favorable statements of Kolischer.

While these cases are too few to base a final judgment upon, they are highly suggestive. The results of this method, so far as contour and mobility are concerned, are greatly superior to ankylosis, or excision. The danger to life is apparently less than even under antiseptic resections; the time consumed by the treatment is no longer than by excision. It remains to be proved, however, whether the nidus of the tubercular infection is as thoroughly destroyed by this method as by excision, and the use of iodoform.

DEATH IN THE TEA-BUN.

LAST January THE MEDICAL NEWS called attention to the fact that bakers were using a preparation known to the trade as "egg-yolk," which contains chromate of lead, to impart to their cakes the rich yellow color which is given by egg—and the risk of lead poisoning thereby was pointed out. In our issue of last Saturday, we presented a report by DR. DAVID D. STEWART of eight cases of illness in one family which came under his observation, and which he had by patient and intelligent investigation clearly traced to poisoning from eating tea-buns containing chromate of lead. Of these cases four died. He also ascertained that the baker who made these buns had had within two years nine cases of similar illness in his own household, of which seven had been fatal.

Our report of these eleven fatal cases has attracted the attention of the District Attorney, who has brought the matter to the official notice of the Coroner for investigation, and the Board of Health has also referred the subject to its Sanitary Committee, so that we may hope that the publication of these cases will lead to effective measures for the immediate suppression of this insidious source of poisonous adulteration, which is probably more widely practised than is generally supposed.

THE Board of Overseers of Harvard University have just confirmed the following appointments in the Medical Faculty: Dr. C. B. Porter, Professor of Clinical Surgery, and Dr. J. Collins Warren, Associate Professor of Surgery.

THE American Orthopædic Association was organized and the first meeting held at New York last week, under the temporary chairmanship of Dr. Virgil P. Gibney, of New York. A number of excellent papers were read, and the following officers were elected for the ensuing year: *President*, Newton M. Shaffer, M.D., of New York; *Vice-Presidents*, Drs. A. Sydney Roberts, of Philadelphia, and E. H. Bradford, of Boston; *Secretary and Treasurer*, Dr. L. Hall Sayre, of New York.

THE Alumni Association of the College of Physicians and Surgeons of New York offer a prize of five hundred dollars, open for competition to the Alumni of the school, for the best essay upon any medical subject which may be submitted to the committee.

THE medical profession of Philadelphia gave a reception at the Hotel Bellevue last Tuesday evening to Dr. R. J. Levis, on the occasion of his retirement from active professional work.

DR. T. G. RICHARDSON, of New Orleans, sailed for Europe last Saturday, having been hastily summoned to Naples by the severe illness of a near relative.

THE Pennsylvania State Medical Society meets at Bedford on Wednesday, June 29th.

SOCIETY PROCEEDINGS.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, Washington, D. C., May 11, 12, and 13, 1887.

(Specially reported for THE MEDICAL NEWS.)

(Concluded from page 639.)

FRIDAY, MAY 12TH—THIRD DAY,

AFTERNOON SESSION.

DR. THOMAS J. DUNOTT offered

SOME REMARKS ON HYPERTROPHY OF THE TONGUE (LINGUA VITULI, LINGUA PROPENDULA, MACROGLOSSIA).

He stated that this affection, although rare, is mentioned by almost all surgeons of large experience. The case reported was the only one which had come under his observation.

Hypertrophy of the tongue, according to S. D. Gross, may be limited to its muscular substance, to its papillæ, or to its mucous investment, or there may be a simultaneous affection of all these structures, constituting general hypertrophy of the organ. This hypertrophy must not be confounded with tumors or fibro-cellular growths, nor with cysts which are met in the tongue. This form of hypertrophy is nothing but an overdevelopment of normal tissue, which is, of necessity, associated with prolapse, when it is in any degree; and, therefore, the name "propendula linguæ" is not inappropriate.

Most authors who have met with it consider it congenital; but he is inclined to think that, except where it is associated with other congenital imperfections, as especially with idiocy, it is rather the result of inflammatory conditions affecting the various tissues of the tongue.

The case he reported was a girl twelve years old, admitted to the Harrisburg Hospital on January 6, 1886,

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with an enormously large tongue. The organ protruded between the lips for three inches. It was kept enclosed in a muslin bag. Its surface was covered with patches of exfoliated mucous membrane, from underneath which there constantly dribbled a seropurulent discharge. The mucous membrane was cracked and fissured. The circumference of the tongue was 9¾ inches, and its greatest width 4¾ inches. The organ was firm to the touch, almost cartilaginous in consistence. The patient could partake only of liquids. The prolapse of the tongue was of only two months' duration, and it was stated that it began without any apparent cause, there having never been previously noticed any enlargement of the member. On January 15th, measurement demonstrated that a very decided increase in size had occurred, and the patient had to be nourished to a great degree by rectal alimentation. An operation having been determined upon, the patient was anæsthetized with chloroform, to which she responded readily. A needle was then passed under the ranine artery on either side, about 1½ inches from the lips. The thread was withdrawn and tied in a loop which was permitted to hang out of the angles of the mouth, the intention being to command the arteries and the stump after section. He then fully described the further steps of the operation, consisting in the drawing forward of the tongue, and its removal by the scissors and scalpel, the knife being so directed as to secure a conical stump. The operation was successful, and the patient made a good recovery. The stump protruded as far as the frenum. Articulation was tolerable.

The great danger in this operation, according to most authors, is from hemorrhage. This could be easily controlled by a rubber coil passed about the base of the tongue, with the ligature around the ranine arteries. The patient in the operation should be placed in the recumbent posture, in order to prevent the flow of blood into the trachea.

Four methods of ablation of the tongue are practised: 1, the oral of Paget; 2, the symphyseal of Syme and Sedilott; 3, the submental introduced by Regnoli, in 1838, and its subsequent modification by Nunnely, of Leeds, in 1861. These operations are, for the most part, intended for the removal of malignant disease of the tongue.

In the case reported, microscopic examination showed that the enlargement was made up for the most part of dilated lymph vessels, with increase of the connective tissue, and some striated muscular fibres.

DR. L. MCLANE TIFFANY submitted photographic illustrations of cases of the same character as that reported by Dr. Dunott. The case was that of a negro five years old, the affection being congenital. The same deformity of the lower jaw was present as is usually found in these malformations, the incisor teeth projecting forward, instead of resting perpendicularly upon the bone. The operation was done simply by putting the child to sleep, drawing the tongue forward and cutting it off with Paquelin's cautery. The incision was made vertically to the long diameter of the tongue. No attempt was made to form flaps. The tissue as cut through was found to present the appearance of being composed very largely of the tissues of an unaffected normal tongue, the lymph spaces being probably filled. There was no hemorrhage at all until the ranine artery was reached. One of these, after a single spurt, did not bleed at all; the other was closed by pinch forceps, and afterward by ligature. The patient within a week was eating solid food, and left the hospital on the twelfth day after the operation.

DR. J. FORD THOMPSON reported two cases of

VAGINAL HYSTERECTOMY.

He had determined to report these two cases, he said, in the hope that the discussion they elicit will settle the vexed question whether the operation is to be encouraged or condemned.

Case 1.—A. E., white, æt. forty-five, married seven years, had given birth to one child three years previous to the record of the case, the labor being very difficult. Malignant disease of the cervix was diagnosticated by her attendant. Examination revealed great destruction of the cervix, the loss extending beyond the internal os. She had been losing a great deal of blood at each menstrual period, which was prolonged, but not attended with much pain. She had a cachectic appearance. The uterus was movable, and there did not appear to be any infiltration. She was admitted to the Garfield Hospital April 15, 1885. On the 23d, after consultation, it was decided to avoid hysterectomy, if possible, and to limit the operation to that for amputation of the cervix.

April 24th, the patient having been prepared for operation, was anæsthetized, and placed in the lithotomy position. The cervix was seized and brought forward as far as practicable. The spoon was used to scrape away the softened tissue, and the scissors to sever the vaginal attachments. After cutting away the cervix with the scissors, it was attempted to use the spoon, but it was discovered that Douglas's cul-de-sac had been opened, and it was thought advisable to extirpate the entire organ. The uterus was then, without much difficulty, freed from the bladder, a silk ligature was placed about the organ, and the uterus was split into halves. Each part was then brought down, a ligature applied above it, and the stump cut away. There was no loss of blood from the ligaments, but a constant oozing from the parts severed in the first steps of the operation; this, however, was stopped with hot water. A knuckle of the intestine protruded, but was readily returned. Sutures of the peritoneum were not used. The patient at the close of the operation was very weak, and complained of pain.

April 25th, 11 A.M., pulse 140, and feeble; temperature 103°. The vaginal tampon was removed, and the vagina irrigated. She died twenty-four hours after the operation.

Case 2.—Mrs. M. H., white, æt. fifty-five, admitted to the Garfield Hospital February 26, 1887, married at nineteen, had three children. The menopause passed at fifty-one. Hemorrhage had been noticed for some time. First saw her in consultation shortly before admission to the hospital. Her general condition was good, but she was very much reduced in flesh and cachectic in appearance. Advanced laceration of the cervix was recognized upon examination, especially of the posterior lip. The malignant disease had extended backward, and had encroached upon the posterior cul-de-sac. The uterus was next drawn down, when the disease was found to extend along the cervical canal to the internal os, and probably beyond, but no evidence was present of its having extended beyond the uterine

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walls. Bleeding during the examination was free. A month later he again saw her, in consultation, and it was decided that she should go to the Garfield Hospital.

February 28th, at 11 A.M., she was etherized. Antiseptic precautions were employed; she was placed in the lithotomy position, and no speculum was used. The vaginal wall was separated from the uterus all around; the attachments to the bladder in front were divided, the uterus drawn down through the opening, and dissected from its other attachments. She made a fair recovery.

He then compared the operation thus made with laparo-hysterectomy, which, he said, has been almost entirely abandoned because of its great mortality. The first operation of hysterectomy was performed by Langenbeck in 1813. It was occasionally resorted to by operators afterward; in 1830 a number of successes were recorded, but fatal cases again occurred, and it was abandoned. From the history, however, he did not think its fatality was sufficient to deter the surgeon from resorting to it. Certain accidents are, of course, liable to occur, as injury to the bladder, peritonitis, etc. There are at least six methods which are used at the present time, the relative advantages and disadvantages of which he briefly discussed. With reference to the use of peritoneal sutures, he was, on general principles, in favor of them, and was aware of no reasonable objection to their use. He would certainly favor the partial closing of the vaginal vault by bringing the edges together.

Are the dangers of the operation so great as to cause us to reject it, or to cause us to hesitate to perform it in carcinomatous disease? Although its history dates far back, it is still a modern operation, and it is too soon to decide its merits or demerits as a therapeutical method. The statistics of the immediate results are becoming more and more favorable, and, in the hands of skilled operators, it will soon lose its terrors, and be considered as rather easy of execution. Until recently, the mortality of the operation was about thirty per cent., but lately some authors have reduced it to a little more than twenty per cent. There is no doubt a disease of the cervix called cancroid, or papilloma of the cervix, which may be cured by a partial operation, and this may lead to error in some instance. There is no reason that we should except from total extirpation the uterus, when we are insisting upon its adoption in all other organs where it is possible for malignant disease.

DR. T. R. VARICK thought the time had not yet arrived to make positive statements with reference to the operation, and cautioned against placing too implicit reliance upon the statistics which have been published.

DR. T. F. PREWITT thought the conclusions of Dr. Thompson in the main correct. He very readily agreed with him that extirpation is the better operation for malignant disease; but went further, and said that upon the earliest appearance of epithelioma of the cervix there should be total extirpation of the organ, for he thought this would be the better cure, the safer course. We all know how prone these carcinomatous diseases are to return, and that all operations that have been made heretofore by the supra-vaginal operation, the curette, the cautery, etc., have failed. It has been claimed by some that they have operated fifteen years ago, and that there has been no return, but he suspected that the cases were not carcinomatous. We know that we derive great encouragement by doing a thorough operation for the disease in other localities. Epithelioma of the lip frequently shows no disposition to return; but, if it goes on for years, there is a period after which it will return in spite of any cutting we can do. He had a case some months ago that is a good illustration of the advantages of a thorough operation. A woman of fifty had evidences of malignant disease for some time, offensive and bloody discharge, etc., while she was becoming emaciated and her health impaired. An epitheliomatous growth was found which extended laterally. The uterus was movable, and the surrounding tissues were apparently not involved. The only course that apparently would give her any possible chance for prolonged life was hysterectomy. This was done and the patient recovered. He also narrated a case in which, in attempting to make this operation, he caused a rupture of the bladder, the tissues being so friable that any attempt at traction on them resulted in a tearing, and the operation had to be abandoned, and the opening in the bladder closed. The patient did well afterward, living for several months at least.

DR. E. H. GREGORY had always been taught that the grandeur of surgery was to save every part possible, and he would no more think of removing the entire uterus for an epithelioma of the cervix than he would think of removing the entire lip for an epithelioma of that region. We know that epithelioma and carcinoma are entirely different in their behavior; we know that epithelioma is, of all malignant growths, the least malignant. He would not think of removing the entire lower jaw for a malignant growth of one side of the jaw. He did not believe that the fact that a part of an organ is diseased is a warrant for the extirpation of the whole. He could narrate as many successes after the removal of part of an organ where the patients had lived for years afterward, and are alive to-day, as could be related after total extirpation. He called attention to the fact that in the case of Dr. Prewitt, where the operation could not be completed, the patient may be living yet, and still the disease was left there which it was proposed to remove; and the fact that the patient from whom Dr. Prewitt removed the entire organ is still alive is counterbalanced by the fact that the patient from whom he failed to remove the disease is also alive.

DR. A. R. KINLOCH said that the only way to decide with regard to an operation is from the statistics of successes. If the last speaker can prove that he can cut far and wide of an epithelioma of the cervix, without extirpating the uterus, then he was with him. If he can prove that in cases where he extirpated the uterus he did not save the life of the patient or prolong it, then he is right in sticking to his old rules, as he calls them, and not try new ones; but if the modern surgeon can show that life has been prolonged by it, then he would ask him not to condemn the teachings of what he calls modern surgery.

DR. GREGORY stated that when he assumed what he had in regard to the uterus, he did so in all sincerity, for he was absolutely certain as to his conclusions. We cannot assume with as much certainty that the infiltration of the uterus is limited, as we can of any other organ of the body. Again, we know that in attempting

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to remove thoroughly all traces of cancer of the mamma, we remove not only the entire breast, but go up into the axilla and dissect it out. Now, if we were to apply to the uterus the rules that we apply elsewhere, we would remove the entire contents of the pelvic cavity. The man who would cut "far and wide" of this organ would have no limit but that of the wall of the pelvis.

DR. C. B. NANCREDE thought the question of the anatomy of the uterus and of the lymphatics and blood-vessels of the vagina could not be entered into here, but that it had an immense bearing upon the question which had been raised. We do not cut into the axilla unless it is involved. Quite a number of patients can be shown in Philadelphia in whom malignant disease extended to the axilla, and where the patients have lived from ten to fifteen years after its removal. He held firmly to the belief that carcinoma is curable if operation is performed early enough and freely enough. There is a pathological law which applies to this, namely, that if the whole of an organ that is afflicted with carcinoma is not removed, there is no evidence that the disease will not return, but there is the almost certainty that it will return. If the lymphatics are not involved, there is the almost certainty that the disease will not return after removal.

DR. T. G. RICHARDSON then read a paper on

THE TREATMENT OF ANEURISMS,

based upon two cases which had come under his observation, one an aneurism of the left subclavian, the other affecting the femoral artery.

In regard to the aneurism of the left subclavian he expressed regret at his not being able to alter the uniformly fatal termination of the disease. His patient, an Irishman, forty-five years of age, had for two years suffered from pain in the left shoulder, and loss of power in his left arm. A few months before he came under his care, he had discovered a pulsating tumor protruding above the collar-bone. The tumor was about the size of a hen's egg, but flattened posteriorly and crowded down behind the clavicle. The patient's sufferings had been such that he had been kept under the influence of chloral and opium. When he first came under observation, medical treatment was tried; the patient was confined to bed, on a spare diet, and the heart's action reduced by veratrum viride, together with doses of the iodide of potassium. No diminution in the size of the tumor having taken place at the end of a week, direct compression was attempted by a compress and an ordinary rubber band; but this became almost intolerable, and was substituted by a rubber band passing around the chest, with a belt over the shoulder. The apparatus was all that could be desired, and the patient carried out his part of the treatment fully, but at the end of a month all that could be said was that it had slightly retarded the progress of the growth. Nineteen pins, measuring one and a quarter inches in length, were passed through the anterior wall of the tumor, care being taken not to injure the adjacent nerves and bloodvessels. Several pins disappeared from view into the skin, in consequence of the swelling that ensued. The tumor appeared to be getting harder, but it became apparent that it was due to to inflammation of the skin and subcutaneous tissues, while the tumor was growing rapidly. He decided upon the ligation of the axillary artery, and the injection of the perchloride of iron. The ligation was carefully done, and a solution of the perchloride of iron (1 : 20, in water) was injected into the centre of the tumor. No coagulation occurred, and a solution of double the strength was used. Secondary hemorrhage occurred, and death quickly followed. Upon necropsy, the tumor was found to be about the size of a fist, and involving about three-fourths of the axillary artery, having caused almost complete occlusion of the left subclavian vein. A fairly thick layer of fibrin lined the interior, corresponding to where the pins had been. The walls of the rest of the tumor were very thin. The walls of the artery on the proximal side were very soft. Another aneurism of the right subclavian, involving the innominate, was also found.

The second patient was a shoemaker, fifty-five years of age, who was admitted into the hospital for a painful swelling of the left thigh. The tumor, an aneurism of the femoral artery, was about the size of a goose's egg, irregularly flattened. None of the characteristic signs of aneurism were wanting. It was supposed to possess thin walls. The man looked anæmic and delicate. He had had syphilis about nine years before. The cause of the disease was supposed to be the irritation caused by hammering leather on an iron placed on his thigh. The tumor appeared to be inflamed by the manipulation. To overcome this, Dr. Richardson suspended the limb flexed at right angles at the hip and knee. He found on the first day an improvement in the condition of the tumor, and a few days later, that coagulation had occurred. A week later he was discharged, cured, and a few months after only a small nodule could be felt at the site of the tumor.

As this is probably the first case of femoral aneurism cured by this method, he desired to call attention to the fact that no pressure was exerted on the tumor, but that the only treatment was flexion, and suspension of the limb, especially the latter. He thought that gravity had a great deal to do with effecting the cure.

DR. DAVID PRINCE read a paper on

WOUNDS: THEIR ASEPTIC AND ANTISEPTIC MANAGEMENT.

The aseptic treatment, he said, consisted in (1) diminishing the amount of floating material in the air by means of filtration through cotton, for wounds in the process of formation. (2) By the subsequent seclusion of the same floating material by investments that are proof against penetration by the dust floating in the atmosphere. The antiseptic consisted in the employment of agents which are unfriendly or destructive to minute organisms, in such dilution as not to be injurious to the wound itself. Under this head are the dry, the wet antiseptic dressing, and drainage. He then demonstrated his favorite plan for filtering the atmosphere.

DR. JAMES MCCANN, of Pittsburg, then reported a successful case of

SPLENECTOMY,

which will appear in full in an early number of THE MEDICAL NEWS.

Votes of thanks were extended to the President for his efficient manner of conducting the meetings of the Association; to the Surgeon-General, for the use of the

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Library of the Museum Building as a place of meeting; and to the Cosmos Club, of Washington, for their proffered hospitalities.

The Association then adjourned, subject to the call of the President.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Ninth Annual Congress, held in New York, May 26, 27, and 28, 1887.

(Concluded from page 635.)

SATURDAY, MAY 28TH—MORNING SESSION.

DR. S. W. LANGMAID read a paper on the

CONSTITUTIONAL CAUSES OF THROAT AFFECTIONS.

He suggested that the most interesting lesson to be drawn from the observation of the lesions in the throat trouble, is that there is some underlying cause which may be external or intrinsic. Our attention has been directed too much to the local condition, and to atmospheric influences. Why atmospheric conditions are active at one time and not at another, is a matter worthy of consideration. One of the most intractable diseases which we have to treat is chronic recurring coryza. Sometimes destruction of the mucous membrane of the nose is sufficient, but, as a rule, the treatment must take in all the circumstances of the life of the sufferer. A sense of a lump in the throat, so often complained of, is often an indication of an overloaded colon, and more good is done by a dose of castor oil than by local treatment.

The so-called clergyman's sore throat, or follicular laryngitis, has its origin, not in the necessary use of the throat, but in the sedentary life which, with errors in diet and other conditions, plays an important part. Throat trouble is sometimes a rheumatic or gouty manifestation, and treatment has to be directed to this condition. Local treatment in many throat troubles is of the nature of repair; constitutional and hygienic treatment must be in the direction of a renewal of the normal processes. Swelling and congestion of the mucous membrane, hypertrophy of the tonsil, elongation of the uvula, etc., must be regarded as symptoms, and the symptoms will not be banished unless the underlying constitutional abnormality is removed.

DR. GLASGOW agreed with the author that many of these local conditions are symptomatic. Many of them are due to some derangement of the digestive apparatus.

DR. SOLIS COHEN said, with reference to rheumatic sore throat, that he had doubts as to the correctness of this term. He had found symptoms closely like those of this affection follow the application of the galvano-cautery to the pharynx and tonsils. Patients often suffer pain in the trapezius muscle from an application of the cautery to the tonsil. He had found the use of guaiac as serviceable here as where the trouble was due to exposure to cold. Whether this is nervous or not, he could not say. He treats his patients constitutionally, using purgatives two or three times a week. There is one form of pharyngitis in adolescents which he had considered to be due to over-feeding.

DR. DELAVAN thought that in this country we pay too little attention to the hygienic surroundings which are employed at the various spas abroad. This method of treatment is very beneficial in cases of interference with the portal circulation and in the gouty diathesis. He had found the salicylates of great service in some of these cases of throat trouble. Habital constipation usually accompanies chronic disease of the pharynx. He had used in these cases the officinal pill of iron and aloes, directing that one be taken at night.

DR. MORRIS J. ASCH then reported

A CASE OF STENOSIS OF THE LARYNX TREATED BY DIVULSION AND SYSTEMATIC DILATATION.

Miss K. up to the age of twenty-seven years enjoyed good health. She then had some pulmonary trouble, the exact nature of which could not be ascertained. In 1884 she had some wheezing in breathing with slight cough. These symptoms increased in intensity gradually, and in May, 1885, the patient came under the observation of the author. There was at this time great dyspnœa which was increased by lying down. Examination of the throat showed no abnormality in the larynx or above the cords. Below the cords there were two white swellings united by a membrane posteriorly.

The opening of the larynx was diminished to one-third of the normal size. The membrane was cut and divulsion performed. This caused great improvement. Later, metallic sounds were used daily and the forceps once a week. She grew much better and ceased attending. In September she again returned, with the difficulty of the breathing as great as before. This was the result of acute inflammation of the larynx. Under the use of steam and cold compresses the swelling subsided. O'Dwyer's tubes were tried, but they at once produced spasm and were coughed out. Schröder's hard-rubber tubes were then used and within three months the cure was perfect. All the symptoms have now disappeared. There was no history of syphilis and no history of previous inflammation. The trouble was evidently the result of subcardial hypertrophic laryngitis.

DR. SOLIS COHEN said that his experience in stenosis of the larynx had been limited. In one case, reported twenty years ago, he removed a morbid growth by thyrotomy after it had been destroyed by the internal use of the galvano-cautery, which was probably the first use of the galvano-cautery for this purpose in the United States. Preliminary tracheotomy had been performed ten days previously. The operation was followed by adhesion of the vocal cord to the tissue of the opposite side. He then devised an instrument to cut this adhesion. He thought better to perform tracheotomy so as to have nothing to interfere with the breathing and then pursue the most active measures for the relief of the stenosis. When the operation is performed with antiseptic precautions, the tracheotomy wound heals up in a very short time. He thought that the danger from the operation is less than the risk of injury from the other methods of treatment.

DR. E. C. MORGAN had recently under treatment a case of laryngeal stenosis. During a period of eight or ten months he was enabled to control this by the administration of iodide of potassium and by the local applications of iodo-glycerine to the larynx. Finally, the disease advanced so far that on several occasions

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he advised tracheotomy to be followed by dilatation. The patient postponed the operation a number of times, although warned of his danger. He had at times suffocative spells at night and finally succumbed to one of these spasmodic attacks. The speaker thought that if tracheotomy had been allowed and dilatation performed the man would have been alive to-day.

DR. DELAVAN thought that the various forms of dilators used in these cases are likely to be replaced by O'Dwyer's tubes. This method has a most promising future before it. The tube can be left in for a length of time and respiration not interfered with.

DR. LANGMAID reported a case of

FOREIGN BODY IN THE LARYNX.

The patient came under observation three months after swallowing a pin about two inches in length. The pin had lodged in the throat, and immediately after the accident an unsuccessful effort had been made to remove it with the bristle probang. At the time that she came under his notice, there were ulcerations of the larynx which were relieved by treatment. Two years later the patient again presented herself, and an examination showed the pin, which had emerged from the ventricular band with the head down. It was with some difficulty removed.

DR. SOLIS COHEN stated that in several instances he had seen on examining the pharynx, what appeared to be the belly of a muscle above the mouth of the Eustachian tube, and that from this there extended to the fornix of the pharynx what looked like a tendon. This he had seen on both sides. He asked whether or not any of the other members had observed the same appearance.

DR. RUFUS P. LINCOLN, of New York, reported a case of

RECURRENT NASO-PHARYNGEAL TUMOR CURED BY ELECTROLYSIS.

The patient presented himself in April, 1886. A growth had been removed from the posterior nares by another physician one year previously. It returned, and the operation was repeated six months later. When the patient came under observation he was unable to breathe through the left nostril. On examination, a large growth was found occupying the left half of the posterior nares, and it was decided to treat this by electrolysis. On June 3d, two needles connected with the negative pole of the battery were introduced through the anterior nares into the growth, while the positive pole terminated in two large sponge electrodes, which were applied to the front and back of the chest. In all, sixteen applications were made at intervals of three or four days. This caused an entire disappearance of the growth. The immediate effect of the electrolysis was to cause distention and a change in the color of the growth, but these passed off in the course of twenty-four hours. There is, up to the present time, no evidence of the return of the growth.

DR. HOOPER said that in October, 1881, a youth presented himself with a tumor extending from the tip of the right nostril into the naso-pharyngeal cavity. There had been a great deal of hemorrhage and the patient was in a bad condition. He was sent into the hospital and operated on by Dr. J. C. Warren, with the galvano-cautery snare, and the whole mass removed in one piece. From that time to this the patient has been constantly under treatment. The tumor had been growing and from time to time he had snared it off. The tumor has been pronounced to be a most malignant form of myxo-sarcoma, but the general health is excellent. He proposed next to try the effect of electrolysis.

DR. DELAVAN said that during the past fifteen years he had seen a number of these patients operated upon, and recalled many cases in which the result was disastrous. Although there had been successful cases, none had come under his observation. The great point is in the early diagnosis. If taken in time, even if it cannot be cured, it can, as a rule, be kept in check. After the age of twenty-five years, it has been stated that these tumors have a tendency to stop growing, so that if kept in check until this age, they may entirely disappear. It seemed to him that the galvano-cautery exercises a modifying influence on the tissues which remain, which cannot be caused by the knife.

DR. W. C. JARVIS, of New York, reported

TWO UNIQUE CASES OF CONGENITAL OCCLUSION OF THE ANTERIOR NARES.

Complete congenital occlusion of the anterior nares is rare, and the author had been unable to discover any cases in searching the literature of the subject. The first case was a man eighteen years of age, with complete closure of both nostrils. Inspection showed on each side within the anterior nares, a cup-shaped depression of white glistening membrane. On the left side a small hole was discovered. The operation was performed in April, 1886. The burrs devised by the speaker, connected with an engine, were used to cut through the cartilaginous occlusion. This was accomplished in a few minutes; the air passed freely through the nostril. At a subsequent operation the right nostril was opened. In April, 1887, the opening in the right nostril had become contracted and had to be reopened. In a second case in which the anterior nostrils were occluded by a osseous formation, the operation was performed in the same manner as in the previous case, with successful result.

AFTERNOON SESSION.

DR. ALEXANDER W. MAC COY, of Philadelphia, related

A COMPARATIVE STUDY OF SOME OF THE METHODS OF TREATMENT BEST ADAPTED TO THE RELIEF OF THE POSTERIOR NARES.

He confined his remarks to occlusion due to enlargement of the soft parts. He had never seen occlusion of the posterior nares due to osseous growth. He referred to the methods used in the treatment of occlusion of the posterior nares, and highly recommended the use of chromic acid fused on the end of a probe, the end of which is covered with a tube, which is withdrawn when the probe has reached the desired position. This is followed by the use of an antagonistic solution. He had found this better than the use of the galvano-cautery. Since using cocaine, he had not been able to use the cold wire snare in these cases on account of the contraction caused by the drug. He had also found difficulty in using the needles recommended by Dr.

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Jarvis. The chief object of the paper was to call attention to the superiority of chromic acid, used in this way, over the other methods of treatment which had been recommended. He did not recommend the use of the acid either in crystal or in solution, for then it was not easy to limit the application to the desired point.

DR. JARVIS stated that he never used cocaine as a preliminary measure where he intended to remove posterior hypertrophies. He first includes the hypertrophies in the loop and draws the wire home and then applies the cocaine spray. The tissue included in the loop can not be affected by the contraction produced by the drug. We thus have the advantages of the anæsthetic without its disadvantages. It has been pretty generally recognized that chromic acid has many disadvantages. It may produce serious symptoms. The snare will accomplish in a few minutes what chromic acid requires considerable time to do.

DR. RICE agreed in the main with what the author of the paper had said. The turbinate bodies are difficult to penetrate with the needles, and there are many cases in which it is difficult to apply the loop posteriorly. He had not found any special disadvantages in the use of chromic acid.

DR. DELAVAN, of New York, formerly used chromic acid, but then gave it up. Lately he had again tested it, selecting for this purpose five patients, three of whom were physicians. He added enough water to the crystals to make them deliquesce, and then applied it with a cotton wrapped probe, the excess of acid having been removed. He had also used it by fusing it on a probe. In all these cases there was more reaction than followed the use of the cautery or the snare, and all the patients preferred the cautery to the chromic acid.

DR. DEBLOIS exhibited a plaster splint which he had employed with advantage in a case of

FRACTURE OF THE NOSE.

The splint consisted simply of a plaster cast, into which a piece of roller bandage had been incorporated. This was applied over the nose and held in position by the strips of bandage.

EXECUTIVE SESSION.

The report of the Committee on the Congress of American Physicians and Surgeons presented its report, embracing the conclusions of the Conference Committee, which were adopted.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. R. P. Lincoln, of New York.

Vice-Presidents.—Drs. J. N. Mackenzie, of Baltimore, and S. W. Langmaid, of Boston.

Secretary and Treasurer.—Dr. D. Bryson Delavan, of New York.

Librarian.—Dr. T. R. French, of Brooklyn.

Council.—Drs. Frank Donaldson, of Baltimore; J. Solis Cohen, of Philadelphia; F. H. Hooper, of Boston; and E. C. Morgan, of Washington.

The following were elected *Corresponding Fellows:* Dr. A. Gougenheim, of Paris; and S. Moure, of Bordeaux.

Dr. A. Jacobi, of New York, was elected *Honorary Fellow.*

The Association then adjourned.

NEWS ITEMS.

ANÆSTHESIA IN HEART DISEASE.—A special meeting of the Philadelphia County Medical Society was held on June 15th to receive the report of a Committee appointed, at the request of Dr. H. F. Formad, to inquire into certain testimony given by him at a coroner's inquest; which testimony, he stated, had been imperfectly reported, giving rise to a false impression in the public mind. The opinion attributed to Dr. Formad was "that ether should not be administered to persons suffering with heart disease." It is true that he did so state, but the important omission of the words additionally used by him, "without due precaution and proper care both during the administration of the drug and after its withdrawal," materially altered the import of his testimony as reported.

That Dr. Formad qualified his testimony by the use of the language quoted, was substantiated by the statement of the Coroner and the evidence of the records of the Coroner's office.

In view of these facts the Committee reported the following resolutions, which were unanimously adopted:

Resolved, That in the opinion of the Philadelphia County Medical Society, the testimony of the Coroner's physician, Dr. H. F. Formad, "that ether should not be administered to patients with heart disease, without due precaution and proper care both during the administration of the drug and after its withdrawal" is correct and proper; and the same caution should be observed in any other case.

And whereas, A false impression may have been given to the public by the imperfect reports of Dr. Formad's testimony published in the daily papers, and the medical profession placed in a false and dangerous position, therefore be it further

Resolved, That, in the opinion of this Society, the administration of ether is not only necessary and proper when pain is to be inflicted upon patients with cardiac lesions, but lessens the dangers incident to operation; provided that due care be taken during the administration of the anæsthetic, and proper regard be paid to its after-effects.

PHARMACY AT CORNELL UNIVERSITY.—A School of Pharmacy is to be opened in connection with Cornell University during the coming Fall. Women and men are to be admitted.

THE TWELFTH MEETING OF THE SOCIETY OF NEUROLOGISTS AND ALIENISTS OF SOUTHWESTERN GERMANY was held on June 11th and 12th at Strassburg. Among the papers of interest read was one on the Use of Hyoscin in Nervous Diseases, by Erb, of Heidelberg, and Demonstrations of Nervous Diseases, by Kussmaul, of Strassburg.

ILLNESS OF PROFESSOR BILLROTH.—As the name of the great Vienna surgeon is almost as much a household word among his English-speaking brethren as it is

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in Germany, a few details respecting the indisposition which recently threatened to cut short his brilliant career cannot fail to be interesting to our readers. He had been confined to bed for some time by a sharp attack of bronchitis, when acute pneumonia supervened. These conditions, combined with fatty degeneration of the heart, brought about a state of alarming prostration, from which it was for some time thought impossible that he could rally. His celebrated colleagues, Von Bamberger and Nothnagel, were in constant attendance, and it is needless to say that everything was done for his relief that the most advanced science could suggest. Billroth appears to have derived most benefit from inhalations of pure oxygen, which were prepared for him every day by Professor Ludwig. Under this treatment the dyspnœa diminished, the pulse became stronger, and consciousness gradually returned. The illustrious patient is now fully convalescent, and will in a week or two be able to go to the fine country house at St. Gilgenfer belonging to his wife. It is seldom that the illness of a member of our fraternity has excited such universal interest and sympathy in all ranks of society. The varying phases of the disease were chronicled in the daily press, as if he had been a crowned head or a statesman of the first rank; and telegraphic messages of inquiry as to his condition were continually being received from royal and other exalted personages by those in charge of the case. It is particularly pleasant to record that the Imperial-Royal Society of Physicians, of Vienna, has sent Billroth a formal congratulation on his recovery.—*British Medical Journal*, June 11, 1887.

THE ACCIDENT TO THE KING OF THE COWBOYS.—The case of the celebrated cowboy, Buck Taylor, who met with an accident at Buffalo Bill's "Wild West" last week, is not without surgical interest. The peculiar character of the injury is explained by the circumstances under which it was inflicted. He was engaged in the quadrille on horseback, and was passing between two horses, when one of them, ridden by a "Western girl," swerved, and left little space for his horse to pass on. He attempted, however, to go forward, when the swerving horse swung itself with great force against his right thigh, and he felt the bone snap as he received the blow. Buck Taylor then tried to rest the injured limb along the back of the horse, but found at once that he had lost all control over the muscles of the thigh; so he threw his arm round the horse's neck, and looked out for the right moment to slip as comfortably as possible on the tan. Unfortunately, he could not control himself as he slid off, but fell on his back and sprained the muscles of his neck. Mr. Maitland Coffin was present, and improvised a splint for the injured thigh without disturbing the patient's clothes. Buck Taylor was removed in an ambulance to the West London Hospital, and admitted into Mr. Keetley's accident-ward. A simple and perfectly transverse fracture of the right thigh-bone was discovered, at the junction of the upper with the middle third of the shaft. The shortening hardly amounted to half an inch, owing, probably, to the direct violence which had broken the bone, without the aid of muscular action, and also to the transverse character of the fracture. This trifling amount of shortening is observed after an artificial transverse fracture as produced in Macewen's operation. The chief point of interest, however, in this case is the production of the fracture by direct force applied to the outer aspect of the thigh, not apparently high in degree, and without injury to the soft parts. A few similar cases have been recorded. The limb was placed in a long splint, with extension by a weight and pulley, and a kettle-holder splint was fitted to the anterior aspect of the thigh. Buck Taylor is quite the hero of the hour, and receives daily a large number of visitors, including many persons of high social position and culture, who take an interest in an unsophisticated child of nature. —*British Medical Journal*, June 11, 1887.

A SANITARIUM FOR THE PHTHISICAL.—FRIEDMANN has established at Berka, 800 feet above sea level, a small sanitarium accommodating ten patients, where the general treatment of phthisis, as recommended by Dettweiler at the recent German Congress, will be carried out.

PROFESSOR SENATOR has succeeded Professor Henoch in the charge of the clinic for children's diseases at Berlin; Professor Henoch being obliged to retire on account of ill health.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM JUNE 14 TO JUNE 20, 1887.

HALL, JOHN D., *Captain and Assistant Surgeon.*—Leave of absence extended one month.—*S. O. 136, A. G. O.*, June 14, 1887.

BORDEN, W. C., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month.—*S. O. 138, A. G. O.*, June 16, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 18, 1887.

WALTON, THOMAS C., *Surgeon.*—Ordered, June 15, for examination preliminary to promotion as Medical Inspector.

PRICE, A. F., *Surgeon.*—Detached from special duty, Annapolis, Maryland, proceed home and wait orders.

FLINT, JAMES M., *Surgeon.*—Detached from the "Albatross," and ordered to the Smithsonian Institution.

WILLSON, W. G. G., *Passed Assistant Surgeon.*—Ordered to the Receiving Ship "Independence," Mare Island, Cal.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JUNE 18, 1887.

BRATTON, W. D., *Assistant Surgeon.*—To proceed to Seattle, W. T., on special duty, June 8, 1887. When relieved, to rejoin station at San Francisco, Cal., June 11, 1887.

WATKINS, R. B., *Assistant Surgeon.*—Granted leave of absence for thirty days, June 8, 1887.

HEATH, F. C., *Assistant Surgeon.*—To proceed to Marine Hospital, Detroit, Mich., for temporary duty, June 17, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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